THE MEASUREMENT OF SOCIAL PHENOMENA

A. L. BOWLEY

76 A

22102360164

Med
K21034

LIBRARY OF THE
PRESENTED
BY THE EDITOR OF
B. M. J.
BRITISH MEDICAL ASSOCIATION

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION
PRESENTED BY THE EDITOR OF B. M. J.

THE NATURE AND PURPOSE OF THE MEASUREMENT OF SOCIAL PHENOMENA

23.4.15 3/6 net 21

THE NATURE AND PURPOSE OF THE MEASUREMENT OF SOCIAL PHENOMENA

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION
PRESENTED BY THE EDITOR OF B. M. J.

BY

A. L. BOWLEY, Sc.D
Professor of Statistics in the University of London

LONDON
P. S. KING & SON, LTD
ORCHARD HOUSE, WESTMINSTER
1915

6770334

WELLCOME INSTITUTE
LIBRARY
Coll. welMOmec
Call
No. WA

NOTE

THE following pages contain the substance of five public lectures given in the Faculty of Economics in the University of London in April and May, 1914. Though, as will be evident to the reader, the contents do not nearly exhaust the possibilities of the title, it seemed better to offer them in this slight form, substantially as they were delivered, rather than to wait indefinitely in the hope of ultimate expansion and completion, for they deal with matters of immediate importance to social workers and investigators. The illustrations of standards of living are taken from pre-war conditions. It does not appear necessary to modify the analysis of the statistical concept of a nation even though recent events have shown its difficulty and importance.

March, 1915.

LONDON SCHOOL OF ECONOMICS AND
POLITICAL SCIENCE.

CONTENTS

CHAPTER PAGE

I INTRODUCTION 3

II THE NATION OR SOCIETY . . . 17
 Territorial Subdivisions . . . 21

III RELATION OF PERSONS TO AREAS . 29
 Classification by Areas . . . 33
 Density of Population . . . 40

IV CLASSIFICATION 51
 Preliminary 51
 Industrial 54
 By Degree of Dependence . . 74
 By Social Position. . . . 84

V CLASSIFICATION BY ORDER . . . 97
 By Incomes: Individual. . . 101
 Family . . . 116

VI NATURE OF FAMILY INCOME . . 125

VII PRODUCTION AND CONSUMPTION . . 135

VIII THE STANDARD OF LIVING . . . 149
 Conventional Standards . . . 149
 Minimum Standards . . . 165
 The Poverty Line 177

CHAPTER PAGE
IX ECONOMIC PROGRESS 191
Population 192
Money Income 195
Real Income 204
Change of Distribution of Income . 209
Progress of Classes. 214
Other Measurable Changes . . 219
Conclusion 223

APPENDIX. Families where a son or daughter is at work of a different grade to that of the father 227

INTRODUCTION

CHAPTER I

INTRODUCTION

In recent years a continually increasing interest has been shown in the study of the economic conditions of different classes of society, and a great number of investigations have been made, both by Government departments and by societies and individuals, with the intention of measuring and describing the earnings and circumstances of classes and groups whose standard of living is low or livelihood precarious. This activity may perhaps be dated from the publication of Mr. Booth's *Life and Labour of the People* in 1889, the Labour Commission of 1891, and the institution of the Labour Department in 1893. The time has now arrived to take stock of these activities, to assign their place in an organic body of science, to consider from the beginning the general objects and methods of social investigation, and to inquire how far these objects have been or are in the way of being attained.

Though public interest has been directed chiefly to the study of the poor, with a more or less definite hope of eliminating poverty, it is evident that this is only part of the much more general study of society as a whole in all its economic activities and as to all its measurable characteristics. No one class and no one aspect of economic life can be isolated. This study is entitled to be considered a separate science, and might be called simply Sociology if that name had not already been chosen to include the knowledge of all group actions and relations, past and present, measurable or not. In order to limit the science one would have to use such a barbarous title as Modern Statistical Sociology, and these words express adequately the subject I propose to discuss.

Statistics itself I regard as a method rather than a science. If statistics were studied for its own sake without reference to its application, it would be a branch of mathematics—a branch which has had in the last few years a perhaps over-luxuriant growth and is ready for the pruning-knife. We may distinguish the fields in which the method is used as those of Administrative Statistics and of Scientific Statistics; and we may subdivide the latter into Sociological and Biological Statistics, without prejudice to the appropriateness of the method to other sciences.

From the first recorded census, the collection of statistics has not been to satisfy idle curiosity but for administrative purposes; and, as shown by the late Sir Robert Giffen in his posthumous work *Statistics*, most of the existing periodic English statistics had their origin in administrative needs and were mainly for departmental use. If they were issued to the public, the form was so unintelligible that they added to ignorance rather than to knowledge. Very gradually a more liberal view has prevailed, and now most of the purely administrative statistics are published in such a way that their meaning and content can be grasped by very careful readers; while it is now definitely part of the duty of more than one department to collect and publish statistics solely for the purpose of disseminating information. So far as this information is not merely to serve some temporary or local need, it should come within the field of scientific statistics.

All scientific statistics have a great deal that is common in method—in the establishment of averages, in the description of variations, and in problems of causation; it is convenient, however, to keep biology separate from sociology, although each borrows from the other in the study of man as an individual, and the two meet on common ground in problems of Eugenics. The problems of sociology are essentially different from those of general biology, and the study of heredity, to which biological statistics have been mainly applied, is only one out of many for the sociologist. We may complete the classification that concerns us by including economic statistics in sociology, for they always relate to activities of groups, or of individuals in relation to groups.

The general problem of sociological statistics is to define or delimitate and enumerate classes, to specify attributes or characteristics of the members of these classes, to measure these attributes and describe their variation, and to discover relations and causal connexions. In other words, we have to regard society as an organic whole, and give a reasoned quantitative description of all its parts. The purpose of the study is twofold. First there is the purely scientific end of description, of classification and of investigation of causes. Secondly, there is the utilitarian end of obtaining such knowledge of conditions and their relations, that we may be able to modify them with a view to constructing a society more in accordance with some ideal.

The material for this general study that has so far been collected is imperfect and fragmentary in the extreme. As already indicated, much of it comes merely as a by-product of administrative needs. The decennial population census, which affords the only general view of society as a whole, is dominated by artificial delimitations of areas, and limited by the methods by which its data are obtained both as regards accuracy and range of information; it is further starved and curtailed by want of money. The reports published by the Board of Trade, the Local Government Board, the Treasury and the Home Office do not form part of any complete scheme, but are unconnected and sporadic. A considerable group of unofficial investigations is subject to personal or political or propagandist bias; while the small number of societies and individuals, who have set out to discover facts with a simple regard for truth, have worked independently of each other and only made unconnected and incomplete surveys. Nevertheless the difficulties are not greater than those overcome by scientific investigators in other fields, who have had to invent their instruments and find, and even capture, their material below, above, and in remote parts of the earth. While the social investigator cannot make experiments, the natural scientist cannot cross-examine his subjects. The main task before both is to discover exactly what is the critical thing to examine, and to devise the most perfect machinery for examining it with the minimum of effort.

Like other investigators the statistician has to invent his own units of measurement. The degree of temperature, the unit of illumination, and the standard of electric-potential afford familiar illustrations of the way in which the indefinite is made concrete. Electricity is more subtle than poverty or unemployment, and we should be able to devise scales for definite measurement of these. The difficulty lies not only in the vagueness of such terms as health, fatigue, leisure, but also in the fact that the subjects of our study are conscious beings whose feelings of satisfaction and pain are not a direct mathematical function of any objective quantities. We cannot evade this difficulty completely by dealing with a hypothetical average man, but we can make our ideas definite by considering how much a normal person would benefit by an hour's daily leisure, or 200 square feet of garden. It may very well prove that some measurements are conceivable and desirable, but beyond the wit of man, and measurements of satisfaction are perhaps in this category. Other computations, which present no theoretic difficulty, may be impossible because they involve the co-operation of many uninterested or unintelligent persons: for example, a complete account of the whole annual income and expenditure of any social class. Many investigations, however, are not made, simply from lack of skilled investigators.

The possibilities of description are not exhausted even when no unit can be devised, for objects can be placed in order without any measured scale. The stars could be classified as of different magnitudes by choosing a few stars of different brightness and comparing all others with these. To take an illustration often used, a competent teacher could place a class in order of intelligence with as much certainty as any system of examination marks would afford. If we have thus placed persons or things in order, we may proceed in either of two ways. We may assign classes, describe their characteristics, and then allot an individual to a class, named either by an adjective (e.g., poor) or artificially (as 4th or D class) ; or we may use Galton's method of percentiles, and having selected persons, say, one-hundredth, one-quarter or one-half up the scale, describe these persons by whatever method is possible.

In reviewing the subjects of statistical investigation, I propose to limit myself to those methods which could conceivably be followed, but not to those which have been followed or for which statistics actually exist. If we can define the task of sociological measurement, determine what are the facts which it is essential to know, and devise a means of ascertaining them, half the task is accomplished. In my experience it is neither a very long nor expensive business to get the main rough measurements of quantities, though no obvious data are to hand. Official information, imperfect and badly adapted for sociological purposes as it often is, generally suffices to show the magnitude, nature and locality of a problem; common knowledge, obtainable by conversation with those who have lived in close contact with its circumstances, will place it in fair perspective; while a rapid investigation by sample will give an approximation to detailed measurements. Very often this is all that is wanted. If, for example, we know from the census account that in five per cent. of the houses of a town there are more than two people to a room, if we ascertain that the worse houses are insanitary and small, and if we visit a few to find the actual accommodation, the age and sex of the inhabitants and their occupations, we have probably all the data we need for criticizing or suggesting a policy of reform, without measuring the rooms or making a house-to-house visitation. If the more intensive and extensive inquiry is necessary, the preliminarry survey will have shown what is wanted and how it can be done.

I propose in these lectures to examine systematically some of the general considerations which underlie sociological description. First we must have a working definition of a society, which will at once involve us in its relationship to territory. Then we must consider the division of society into classes and the objects of classification. This will lead to the observation of a class as an entity, and of the relationship of an individual to a class, and to the consideration of the importance of the conception of a type, if only because it makes possible the observation of variations from it. Then will follow measurements of the economic activities of classes and individuals, and questions as to what is meant by progress, and how far we can best measure the progress of the class or of the society. I shall not attempt to give any statistics except those which are needed to illustrate some point or show some proportion, nor shall I give any systematic account of what has so far been done. But I hope that the result of the examination will be to appraise, if indirectly, the value, relevancy and reasonableness of the general existing stock of statistical results, and to suggest some lines of further progress.

THE NATION OR SOCIETY

CHAPTER II

THE NATION OR SOCIETY

SOCIOLOGICAL measurements must be of parts related to a coherent whole. We cannot find any clear boundary till we envisage the population of the world at a given date or period. It is popularly supposed that, as the land-surface of the earth is subdivided into political areas, so is the population divided into nations, and that a nation is a natural and convenient group for analysis. A dictionary definition of a nation is "a people living in the same country and under the same government." If we take the United Kingdom in 1911 as an example of a country, we find that 45,221,615 persons were enumerated as being on the land, inland waters and harbours of Great Britain and Ireland (not including the

Channel Islands nor the Isle of Man) on the night of April 2, or on the day of April 3. Of these persons, 44,567,060 were born in the United Kingdom or at sea. Of those enumerated in Great Britain, 217,259 were born in other parts of the British Empire, 75,759 were British subjects born in foreign countries, 23,797 were naturalized foreigners, and 309,569 were foreigners not naturalized; of those in Ireland, 28,171 were in one or other of these four categories.

In 1901 [1] there were also 367,736 persons, natives of the United Kingdom, in the Army, Royal Navy and Marines, or the Merchant Service abroad. There were also 11,184 persons absent at sea in 1911 in fishing-vessels belonging to England and Wales, and an unknown number to Ireland.[2] In the Channel Islands and Isle of Man there were 148,915 persons in 1911. In the rest of the Empire there were in 1901 about 1,652,000 natives of the United Kingdom, and in Foreign Countries there were about 2,929,000 persons known to be natives of the United Kingdom or British subjects.

---

[1] Figures for 1911 not yet available.

[2] Those belonging to Scotland appear to be included in the total already given.

It is evident from the bare enumeration of these categories that the terms "population of the United Kingdom," "British and Irish nations," "British subjects," are in no case capable of both exact definition and exact enumeration.

If we try from other points of view we still fail to get a clear conception. The group of persons paying taxes to the British Government includes many who do not reside and were not born within the Kingdom. If we considered those who get their living from home activities, we should find many persons living in the United Kingdom who draw all their income from abroad, many persons abroad who draw all their income from here, and many who obtain income from investments both abroad and at home. There are, in fact, many people who are literally cosmopolitans and who can only be classed as national in some restricted legal sense, if at all. Further, there is no means of knowing exactly at any date any numbers of persons except those obtained by enumeration on a defined area.[1] Difficulties of this kind, resulting from necessary complexity of definition and absence of means of enumeration, are so commonly found in statistics that few measurements would be possible if there were no way of escape. The strictest method might be called the "use of the margin of uncertainty." Suppose that the definition has been carefully drawn, and we turn to available statistics, we may find that 10,000,000 persons certainly satisfy the definition, that another 100,000 probably satisfy it, and that there may be not more than 50,000 in addition who may satisfy it for all we know. We should then be able to say that between 10,100,000 less 1 per cent and 10,100,000 plus ½ per cent satisfied the definition, and we could keep this margin throughout any calculation, till we could tell whether it was of any ultimate importance. A less strict method is to elaborate the definition till it includes only the ascertainable (e.g., number of persons known to be on land in the United Kingdom on April 2, 1911, and not entered as non-naturalized foreigners), and use this limited total instead of one of wider connotation.

---

[1] In France the number of persons "resident" in a commune, but absent on the day of the census, is ascertained; but great difficulties of definition result, and the total "population du droit" is inexact.

There is, I think, no doubt that we must base our definition of nations or principal groups for statistical purposes on areas, and our first enumeration of population as that of the persons who happen to be on those areas at any given time; we can, as a second process, amend the totals to satisfy a further definition. Since universal statistics can only be collected with compulsory powers, it is necessary to take our major unit as that under a single government; in the case of empires, it is customary and convenient to take as major subdivisions areas which have some measure of self-government, but there will remain such a miscellaneous group as that formed by the British Crown Colonies.

Territorial Subdivisions.

The lines of division most naturally followed by officials who organize a census are administrative. The kingdom or country is divided into states or provinces, the states into counties, districts, communes; and towns and cities either form one of these divisions or are cut arbitrarily out of them. Such administrative divisions are to a great extent accidental. Sometimes the states or provinces are areas formerly independent and bounded by some natural river or mountain frontier, but more often the boundaries have no natural geographical significance. There is nothing to show when one crosses from England into Wales, from Berkshire into Wiltshire, or from Birmingham into Warwickshire, except artificial boundary marks. That Rutland should be a county when it is of the size of two rural districts, that London should include Woolwich but not West Ham, that the Isle of Wight should have a separate County Council, while the Isle of Man has a separate legislature, are as much historical accidents as that the Channel Islands should be British rather than French. In Great Britain the creation of statutory areas goes on apace, and the continued alteration of boundaries to meet the needs of some new administrative function, or some shifting of population or some irregularity in the incidence of rates, is the main difficulty that confronts those who use successive census reports for comparative purposes. The area of a modern borough in some cases is closely covered with buildings, and in other cases supports a large agricultural and pastoral population. Since the date of the last census the County Borough known as Birmingham has trebled its area and halved the density of its population ; Handsworth is now part of Birmingham, but Smethwick, with a nearly equal population, remains separate. Manchester enlarged its boundaries four times between the census of 1901 and that of 1911, but has not included Salford.

Not only does the administrative separation of contiguous areas correspond to no economic or sociological line of division, but the classification into County Boroughs, Municipal Boroughs, Urban Districts and Rural Districts has been made in so arbitrary, opportunist and temporary a manner that the classification has little significance.

Oxford, Canterbury, and Eastbourne are County Boroughs; Cambridge, Hereford, and Cheltenham are Municipal Boroughs; the City of Ely is an Urban District. About 155 out of 812 Urban Districts[1] had, in 1911, a density under one person per acre; about 29 out of 657 Rural Districts had a density over one per acre. These 29 will probably be made Urban before the next census. Meanwhile it puzzles even an administrator to distinguish between Rural Districts exercising some urban powers and Urban Districts many of whose powers are dormant. The same kind of difficulty is found, no doubt, in all growing countries whenever the number of persons is considered in relation to the area of the ground they occupy. For quite rough purposes, for example of visualizing the magnitude of a problem before its study is begun, the administrative classification is of use. London and the 75 County Boroughs of England and Wales (which in the 1911 census are treated, as regards occupations and for many other tabulations, as quite distinct from the Counties with which they are associated) do, in fact, contain a population which is nearly equal to that which would under any definition be regarded as living in great cities; the Municipal Boroughs and other Urban Districts contain the great proportion of the population engaged in industrial and mining occupations outside the County Boroughs, and the Rural Districts contain the majority of persons living in country surroundings. But directly we come to close quarters with any question, for example the extent of the rural population, the administrative divisions fail us.

---

[1] Not including Boroughs.

The most useful areal unit in the census of Great Britain is the smallest for which both population and area are given,[1] viz., the Civil Parish; there were 14,614 parishes in England and Wales and 874 in Scotland in 1911. Even these vary enormously in area and in population, and a parish often includes valley, down and woodland, cutting clean across geographical differences. For very many purposes we can use the records for the larger areas as a starting position, and adjust by transferring particular parishes, so that totals may be obtained which satisfy other than administrative purposes. It is unfortunate that the only data we have for parishes are the area, number of families, number of males and of females, and persons enumerated in institutions, vessels, etc., and that when we deal with ages, occupations, births, marriages, and deaths, we must take larger units. Sufficient attention has so far not been paid to the important variations to be found from parish to parish; indeed, few people have had the patience to study separately even the much larger areas such as rural districts.

---

[1] In Ireland we can, if necessary, use the 60,679 "townlands" which the country contains. In Great Britain the wards of cities in many cases are smaller areas than civil parishes.

RELATION OF PERSONS TO AREAS.

CHAPTER III

RELATION OF PERSONS TO AREAS

In modern times it becomes increasingly difficult to associate a person with an area. Round all towns of any considerable size we find suburbs, detached groups of houses, isolated houses, and superior houses in rural villages, some of the occupants of which earn their living in the town. This intermingling of town and country is prevalent in industrial nations generally and increases with every development of means of travelling. Even if we enumerated the day population instead of the night population, it would be doubtful whether the women and children in the suburbs or urbanized villages should be associated with the land on which they happen to reside, while the workers for gain, men or women, are associated with the town. There is also a large number of nomads, inspectors, commercial travellers and others, who have very little connexion with the area where their families live. Further, even at the census date, the beginning of April, there are many people temporarily resident at resorts for health or recreation. If a man earns part of his income in one place, receives dividends from an industry in another, spends his money in a third, and sleeps in a fourth, it is difficult to associate him with any one of them. He is more difficult to locate than a modern football player. We must therefore examine more carefully the credentials by which a person can claim to be an inhabitant of a place, and more generally the association between areas and individuals.

Let us return to the territorial idea of a nation, considered as a group of persons occupying, or residing for a considerable length of time on, an area under a single government, the group not being completely homogeneous because of the presence of a relatively small number of foreigners, some of whom are visitors, others of whom will stay permanently, and because of the absence of a relatively small number of natives who may or may not return. This idea may be contrasted with the following definition given by Mr. G. W. Russell (*Co-operation and Nationality*, p. 52) : " [A nation] is a single yet multitudinous being, giving evidences of unity and individual character by the power of growth from within which it manifests." This is an organic definition, whereas for my immediate purpose I need an inorganic definition. Of this multitude not far from half are too young or too old for gainful occupation, and another considerable number are engaged in unpaid or paid domestic work ; these are dependent on the owners of property or on the workers for gain. The workers are, with few exceptions, associated with a definite place : if engaged in agriculture or mining, they obviously are bound to the ground ; if in manufacture, their occupational existence is determined by situation in relation to materials or markets ; if in transport, dealing or commerce, they are bound to the national area when concerned in serving the inhabitants of the territory; while, when they are directing foreign movements of goods, they have chosen the best commercial and geographical centre for their particular operations; if in the professions, neighbourhood to the clientèle is essential; or, finally, they may be occupied in the defence, administration, or government of the inhabitants, their neighbours. In brief, the workers for gain obtain their reward by using the direct or indirect, natural or developed, productive powers of the territory in which they live and work. The owners of property are in the majority of cases also workers, since possession is much diffused in a modern community, and in many other cases are administrators of their property. So far as their property and the place of their occupation are within the same national territory, they live on the productive power of that territory. If there were no other persons, we could extend our definition of a nation to include the phrase "living on the resources of the area"; but as it is, permanence of residence and areal dependence are, as already said, not co-extensive even in so large a unit as a nation. There is the further difficulty that the same individual may be a worker in one country and owner in that and other countries; so that a classification by areal dependence would result in fractions of persons. The only practicable definition then is the simplest, namely, that of permanent residence.

Classification by Areas.

The relation of the land to its residents is complex and various. We must consider six classes of independent persons: (1) resident workers, (2) non-resident workers, (3) residents whose work is elsewhere, (4) resident owners, (5) non-resident owners, (6) owners whose property is elsewhere; and then dependants should also be allotted to the class they depend on, or separated as dependent on the State.

There is, I think, no difficulty in theory in classifying all persons in a country or in any defined area under these headings. The income-tax and the census schedules actually contain the great part of the information, except the simplest, most easily ascertainable fact as to where a worker is employed. The only difficulty arises from fractional ownership, and this can possibly be met by the device of the margin. Thus the inhabitants of an area are, apart from dependants, mainly resident workers and resident owners; there is a margin, which can be found, of other workers, and a margin, more difficult to enumerate, of other owners; there are also margins of non-inhabitants interested in the area. If these margins are broad, residence and areal dependence are not co-extensive; if narrow, we can interchange the terms. It will therefore be convenient if we can so divide our areas that the margin is small.

For example, if we consider Great Britain, we find that considerable regions do not permit any logical areal classification, namely those parts which are influenced by London, Glasgow, Manchester, Liverpool, and perhaps two or three more of the largest cities; for in these cases the characteristics of the great city intermingle with the local characteristics of the smaller areas, some of whose inhabitants travel to their distant work. Any statistics needed for Kent or Cheshire or Lanark must be compiled in direct relation to the special purpose needed. On the other hand, travelling more than, say, five miles to work is very rare among the working-classes and is only frequent among other classes in the few great aggregations of population. In the case of most towns it would not be difficult to delimitate the inhabited area on a large scale map, and add to it the small residential areas of villages or detached suburbs within bicycling, tram or train distance where town workers lived; and it would be a simple investigation to count how many persons came in habitually from these suburbs. It would generally be found that in manufacturing, county and market towns there were few families not dependent on the area. The only class of importance, not enumerated, would be of those who drew dividends from companies situated in the area. A town might then be conceived of as an area covered by buildings, roads, private and public gardens, concentrated for the most part, but with some detached districts, in which a population lived and worked, and part of whose produce was paid to non-residents. If all such areas are excluded, there will remain the great part of the surface of the country,[1] not covered by any buildings except those needed by the population dependent on the produce of the land or mines. There are, however, in Lancashire, Yorkshire, and the North Midland counties regions of scattered industries[2] which would need special treatment.

In dealing with rural areas a convenient method would be to take together a market town and those parishes whose farmers did their local business there. We should perhaps aim at a statement such as the following :—" The market town of A, together with fifty-seven neighbouring civil parishes, contains 20,000 persons on 97,000 acres ; of these about 1,000 persons in 100 families and two institutions derive the main part of their incomes from sources outside the district ; the income so derived is £100,000. There is no manufacture for export. 20,000 acres, and buildings whose assessed annual value is £40,000, are owned by non-residents. The number of persons who reside in and work outside the district is negligible."

---

[1] Only one-ninth of the area of England and Wales is contained in Boroughs and administrative Urban Districts, and a very considerable part of this is, in fact, cultivated.

[2] In the West Riding of Yorkshire Urban Districts other than Boroughs cover about 330,000 acres.

The corresponding statement for the United Kingdom as a whole would run in similar terms. When we have mining districts to deal with, we generally find two working populations (one on the surface engaged in agriculture, the other occupied below ground or about the pit's mouth) who have little in common. They cannot be readily distinguished by area, unless we can mark out the actual space occupied by miners' and superintendents' houses ; and we cannot distinguish the professional and trading classes who work for the one group rather than the other. We could still, however, treat the district as a whole if any useful purpose was served, when the distinction between mining and agriculture was ignored.

The general result of this analysis is to show that in a country which has developed in agriculture, mining, industry and commerce, there are no general clear territorial lines of division except those artificially drawn for administrative purposes. But we can pick out and describe in terms of the relation (other than residential) of people to area a considerable part both of the urban and of the rural population. Most of the information needed for such description exists, though some of it is in the hands of officials in a confidential form and cannot at present be used.

When we have decided what areas can be best treated as separate entities and enumerated their population, there are three evident methods of comparison. We may tabulate the areas with particular characteristics, contrast the rural with the urban, and notice the proportion between them in this and other countries, if we can standardize our definitions. Or we can tabulate the populations of the chosen areas and give a reasoned account of the distribution of the population in regions, or in towns and country. Or we can make comparisons by combining the measurements and deal with the density of the people.

As regards the first two methods, I have only to remark that it is nearly impossible to get a definition of urban as opposed to rural population[1] or area, that applies to more than one country; we have already seen how the problem varies in different parts of the United Kingdom; and if we had framed a definition, we should find that the existing statistics of various countries would not make its application possible. All that can be done in this direction is to accept whatever is the current definition of rural areas in a country, and notice how the area and its population changes from time to time. It is a well-known maxim of statistics that we can study changes even when the definition or the enumeration is faulty. We can thus accept the statement that in most countries the urban population has in recent decades grown more rapidly than the rural, without even knowing the method by which the two are distinguished. We can further use any properly completed census for studying and even making a map of the spatial distribution of the population, if we simply have an adequate delimitation of boundaries and know the numbers inhabiting each district; the only hazard, then, arises from the difficulty of distinguishing permanent from temporary residence.

---

[1] See "Rural Population in England and Wales," *Statistical Journal*, May, 1914.

Density of Population.

The density of population involves further conceptions. It is, of course, a matter of simple arithmetic to divide the number of persons recorded by the number of square miles in the district which they inhabit; the difficulty is to attach meaning to the quotient. We have, in fact, two heterogeneous totals, and the items of the one have a varying relation to the items of the other. The population total includes male and female, old and young, workers, owners and dependants. The areal total includes fertile and barren acres, mountainous and plain, metalliferous and valueless, urban and rural. The relationship may be one of accidental residence or of complete dependence on the products of the land. Before we take any average we must make sure that all the members of the numerator have some common characteristic, and that all the members of the denominator have another common characteristic, and that these characteristics have some relationship to each other. When we say that the density of the population of England and Wales was, in 1911, 618 per square mile, the only things in common are that the persons were present at a particular date on an area which is subject to a certain uniformity of government. When we say that the density of the County Borough of Manchester was 21,100 and that of the Rural District of Burnley was 315 per square mile, we are dealing with populations which do not consist simply of those persons whose interests are involved in the districts, and with accidental administrative areas whose boundaries have changed in the last ten years. On the other hand, when we say that the average weekly earnings of adult male cotton operatives in England were about 29*s.* 6*d.* in 1906, we have complete homogeneity in the numerator, since the coins are actually interchangeable, and the important common characteristic in the denominator that every person enumerated is working for hire in one strongly localized industry.

The most definite plan is to consider what relationship we wish to measure. The two generally considered are the suitability of the land for direct or indirect production of the means of living, and the sufficiency of space for health. Our former analysis gives the material for the first, for we have already considered the computation of the number of people dependent on an area. National comparisons, such as that the United Kingdom, Belgium, and the United States support populations whose densities were respectively 342, 589, and 21 per square mile in 1900, have a certain utility in calling attention to differences which need explanation. The differences are in these cases so great that the margin of vagueness as to the meaning of "support" are unimportant. But if the explanation was simply that part of the area included was useless for agriculture, mining, industry, commerce, or health—that, in fact, it did not contribute to the support of the inhabitants—it is evident that the statement as to density would have no further meaning. When we take smaller divisions, the simplest relation is with agriculture. In primitive times we might have said that so many persons were actually fed per square mile, as we might say that a 100 acres would carry thirty head of cattle; but now we must regard rather the number of persons who get their living directly or indirectly by the cultivation of given areas. Similarly for mining areas we can conceive such a statement as that the products of the mines provide incomes for so many people per square mile, but the statement would obviously have little utility. Still less meaning would be obtained by reckoning the number of persons who earned a living per acre of a town, however carefully we defined urban area. From this point of view density is, then, of use mainly, if not solely, for considering the number of people supported by consumption or sale of pastoral or agricultural products. Even then we must pay attention to the homogeneity of the denominator. Thus the rural districts of an English county (for example, Devon) may contain very fertile and very barren regions; if we include the whole, we shall be mixing a measurement of the variability of the soil with that of the adequacy of its cultivation. If, however, we take a homogeneous area, we may usefully compare the density of the population dependent on it with either that of another area of the same general nature or with that of another homogeneous area of a different nature. We may thus, if we have expert knowledge of agriculture, obtain material for considering the intrinsic value of the soil, or the adequacy of its cultivation, or whether it is fully populated; but we should have to devise further means for distinguishing between these possible causes of difference of density. The statistics obtained would need to be placed in relation with those of occupation and of production, with which I do not propose to deal now.

The measurement of urban density and its relation to health is very complicated. It is futile to compare, for example, the density of Birmingham (39 per acre in 1911) with that of Bristol (21 per acre), if only because the boundaries are accidental and changing, and so by an administrative order the quotients are altered. There are the further and more important reasons that the denominators are not homogeneous nor similarly related to the total. Each city contains not only areas devoted to industry and commerce, but also to agriculture, and the area of residence is a nearly undefinable part of the whole. In parts of the cities the houses are crowded among factories, in other parts they stand in large grounds hardly separated from the open country. To be useful, the study of density in a town must be intensive, and such small areas should be taken that the actual air space available for the inhabitants by day and night may be known. Evidently the freedom of movement of the air within and without the house and the construction and grouping of houses are of as much importance as the actual space, and thus many other factors must be considered as well as density. If we had established such a standard as that under the best conditions of building a density of over 100 per acre was too great for health, we could then use it for selecting small districts which approached or exceeded this standard, and examine these more closely from other points of view.

This use of an average in suggesting fields for special investigation is common in statistics. Of itself an arithmetic average is more likely to conceal than to disclose important facts ; it is of the nature of an abbreviation, and is often an excuse for laziness. The discovery that there are differences between the averages of apparently similar groups, however, very generally makes the first approach towards differentiating these groups; while the movement of an average in a period necessarily shows that either general progress has been made in some direction or that the relationship of the parts to the whole has changed, and in any case that there is a problem to be solved. The general questions of the accuracy of averages, their relation to types and their uses, belong to statistical technique, a subject which I propose to avoid as far as possible in the present discussion.

CLASSIFICATION OF THE MEMBERS OF A NATION

CHAPTER IV

CLASSIFICATION OF THE MEMBERS OF A NATION

Preliminary.

LET us now take for granted that we have an adequate conception of a nation and of other territorial groups, and proceed to consider the classification of individuals within the group.

The general problem of classification can be approached in either of two ways. We may decide *à priori* the nature of the classes—such as occupied or unoccupied—engaged in extractive, industrial or commercial pursuits; or we may examine the material—in this case the individuals of a nation in their economic and social activities—and discover whether they fall into distinct groups, each with recognizable characteristics. In practice the classification is likely to be determined finally by the use of both methods. One test of success will be whether, when we have chosen our classes by one criterion, such as wealth, we find that the groups are homogeneous in other respects, such as kind of work, social position, average size of family, and so on. The general character of the classification will be determined by the purpose for which we wish to regard the nation part by part instead of as a whole. We may, then, take the general problem before us to be the determination of those characteristics of the individuals of a society which lead to aggregates markedly distinguished from one another and of a kind that can be described numerically.

Society may be regarded from many points of view, and a description from any of these is likely to be of use. The most obvious lines of division are by sex and by age; the next are by "civil condition," as unmarried, married, divorced or widowed. These divisions I shall only discuss as subordinate. They present little difficulty in definition and (except in the category "divorced") the statistics relating to them are clear and adequate. We could equally well conceive of a nation as made up of families, if we could so define a family, that the aggregate of families was co-extensive with the aggregate of individuals.

Another possible line of division for individuals is between dependants and independants, and this can be applied in families as well as in communities. The definition is, however, complex. Independants can conceivably be classed as owners or workers, employers or employed. We may also use economic ideas of classification, and speak of landowners, capitalists, entrepreneurs, and employed, and we could divide the latter into clerical and manual, skilled and unskilled.

Starting afresh, we can classify the population as unoccupied or occupied, and group the latter according to the nature or to the purpose of their occupation.

Again, we may classify either individuals or families according to rank or social standing, if we can devise any definitions or measurements.

Finally, we can group individuals or families according to their income.

In most of these methods there can be an indefinite number of subdivisions. If any one classification is taken as the principal, the others can make cross-divisions.

Whatever class we take in sociological inquiry, we should always place it in relation to a general scheme of classification which embraces the nation (or other major group) as a whole. Thus, if a study is made as to the economic position of, say, waitresses, they should be regarded as defined somewhat as follows:—British, women, occupied, hotel and restaurant service, waitresses. Otherwise they are regarded as an isolated group, not as part of a society.

Industrial Classification.

The *à priori* method is the most appropriate for industrial classification, and the division is naturally by function. There is the special difficulty, however, that an individual may exercise two or more functions analytically distinct, as when he is an employer in two industries or an owner of capital and also an employer.

The cases where a person is occupied in two industries at the same time are rare,[1] and where they occur one is often unimportant. Occupation will, then, give nearly clean lines of division, if we can get a satisfactory definition. There is no evident line separating occupied and unoccupied, and we must proceed by delimitation of a scientific frontier between these classes. Taking an economic standpoint, we may limit the word by saying, "Occupied in the production of utilities or the rendering of services." We must, then, for classification decide the regularity, duration, or continuity which amounts to occupation, but this must remain arbitrary, or lead to classification by grades, as "occupied six, five, four days a week." Whether

---

[1] There are many cases of different occupations in different seasons.

SCHEME OF CLASSIFICATION.

Discussed pp. 55–82.

Classification by degree of occupation.

1. Occupied in production of utilities or in rendering services for profits or wages, during normal hours.
2. Occupied in production of utilities or in rendering services for profits or wages, during part of working hours, and (*a*) also doing domestic work at home, or (*b*) completely leisured at home.
3. Completely occupied in domestic work at home.
4. Partly occupied at home and partly leisured.
5. Unoccupied, (*a*) below school-leaving age, (*b*) past work, (*c*) others.

Analysis of nature of occupation.

1. Employed.
    - (*a*) Whenever occupied for gain and
        - (i.) not employing others,
        - (ii.) employing others.
    - (*b*) In part of occupations for gain and
        - (i.) not employing others,
        - (ii.) employing others.
2. Employers and direct workers.
    - (*a*) Directing, not making.
        - (i.) At will, for client.
        - (ii.) Under general instructions.
    - (*b*) Directing and making.
        - (i.) At will, for client.
        - (ii.) Under general instructions.
    - (*c*) Making without help.
        - (i.) At will, for client.
        - (ii.) Under general instructions.

Analysis of condition of employment.

1. Directing.
2. Under orders, (*a*) Clerical, (*b*) Manual, subdivided by degree of skill and responsibility.

Cross-division, (α) Learners, (β) With completed knowledge.

Classification in relation to dependence.

1. Dependent, (*a*) entirely, (*b*) contributing part of cost of keep, (*c*) contributing special cost.
2. Independent, (*a*) contributing special and general cost, (*b*) not living in family.
3. With dependants.

the material commodities are produced for use by the producer or for sale is perhaps not of importance in the classification, and at any rate the number of persons who are regularly occupied in producing goods of which they consume the major part themselves is very small in a modern community. Services give much more difficulty, for the bulk of domestic services and of indoor family work can be done individually, or in family co-operation, or for hire. It is quite common for a working-class woman to give part of her day or week to her house and part for hire to another person's; and the majority of women who are employed in industry also do at least part of their own domestic work. On the other hand, there are relatively few grown girls or women who do no domestic work at all, though they are unoccupied in the ordinary sense. A classification that might prove sufficient is—(1) occupied during normal working hours for profit or wages; (2) so occupied during part of working-hours, and (*a*) also doing domestic work at home, (*b*) completely leisured at home; (3) completely occupied in domestic work at home; (4) partly occupied at home and in part leisured; (5) unoccupied, (*a*) below school-leaving age, (*b*) past work, (*c*) others. Cross-divisions throughout should show whether married, widowed or not, and number of children of school-age and below school-age.

The following table shows how far this classification was carried out[1] for women and girls in the census of England and Wales for 1901, and in the table of occupations in that of 1911:—

	1901.	1911.
Total female population	16,799,230	18,624,884
Engaged in occupations:		
Unmarried	3,254,242	3,739,532
Married	917,509	680,191
Widowed		411,011
Without specified occupations or unoccupied:		
Under 15 years	5,079,088	5,337,335
Over 65 years	733,349	946,614
15–65 years:		
Unmarried	1,426,925	7,510,201
Married	5,388,117	
Widowed		

The census, then, leaves us without knowledge as to the details for the suggested classification for two-fifths of the female population. Common knowledge is, however, sufficient to establish the statement that the great majority of the seven and a half million girls and women between fifteen and sixty-five years spend much of their time in domestic work, and that the bulk of the families of the country do not and cannot afford to support more non-earning women than are necessary for carrying on the household. Various private investigations, now nearly completed, will throw more light on this question. The number of unoccupied men between the ages of fifteen to sixty-five was 411,278 in 1901, and 424,847 in 1911, in England and Wales. It should be remembered that the census depends on unverified statements by householders.

---

[1] More detail by ages is given in the reports.

In searching for main lines of division between occupations, statisticians have found that the clearest were those which separated the materials which are handled in manufacture (as Metals, Wood, Clay, Animal Products, etc.), but even so the purpose of the manufacture has influenced the British classification, for we have Order XIX (Dress) and XX (Food) both containing workers in animal and vegetable substances, and Order XII (Building and Construction) containing workers in vegetable and mineral products ; and even so, Order XXII is necessary to include those who do not fit into the others, while Order XVII has to contain Printing on, as well as the manufacture of, Paper. In general Orders X to XXI represent manufacture, and Orders VII to IX the extractive industries (Agriculture, Fishing, Mining). Order V contains Commerce, but a great number of dealers are placed under the manufacturing Orders. Before Commerce we find Professions, before Professions the Army and Navy, and in the first Order, General and Local Government. Domestic Service is awkwardly placed between the Professions and Commerce.

	English Census.	Bertillon.	French Census.
			A. Population active
VII VIII	Agriculture Fishing	1. Agriculture .	1. Peche. 2. Forêts et agriculture.
IX	Mines and Quarries	2. Extraction .	3. Industries extractives.

X–XXI	Industry	3. Industrie	4. Industries de transformation.
VI	Transport	4. Transport	5. Manutention et transport.
V	Commerce	5. Commerce	6. Commerce, spectacles, banque
II	Defence	6. Force publique	9. Services de l'État, des départements ou des communes
I	Government	7. Administration publique	
III	Professions	8. Les professions libérales	7. Professions libérales, cultes.
IV	Domestic	10. Travail Domestique	8. Soins personels, service domestique.
XXII	Miscellaneous	11. Désignations génerales	
XXIII	Unoccupied	9. Les personnes vivant de leur revenus 12. Inproductifs Profession inconnue	B. Population inactive.

The Orders X to XXI in the English census are respectively: Metals; Precious Metals; Building and Construction; Wood; Brick, Pottery, Glass; Chemicals, etc.; Skins, etc.; Paper and Books; Textiles; Dress; Food, Tobacco, Drink, Lodgings; Gas, Water, etc.

It is evident that this classification lacks system and purpose, and it necessarily leads to curious results. The official postman is occupied in the General Government of the Country (Order I); if he is a private postman he is in Domestic Service (Order IV); a bank-messenger and a telegraph clerk are engaged in the conveyance of Men, Goods and Messages (Order

VI); a library messenger is among the Professions (Order III). A porter may be found in Orders I, III, IV, VI, or XXII. In former times a doctor has been indistinguishable from a veterinary surgeon, a veterinary surgeon from a blacksmith, a blacksmith from a whitesmith, a whitesmith from other metal workers.

M. Bertillon, in a report presented to the Institut International de Statistique in 1889, justified a classification (on these general lines) as follows[1]:—

> " (A). L'homme se procure les matières premières nécessaires à toute profession, soit par l'exploitation du sol[2] (I. *Agriculture*), soit par l'exploitation du sous-sol (II. *Extraction de matières minérales*);
>
> " (B). Ces matières premières sont ensuite transformées par l'industrie (III. *Industrie*), portées à l'endroit où elles sont demandées par les moyens de transport (IV. *Transport*) et distribuées entre les consommateurs par le commerce (V. *Commerce*);
>
> " (C). Pour veiller au bon ordre et à la sécurité des professions qui précèdent, chaque pays possède une armée et une gendarmerie (VI. *Force publique*), une *administration publique* (VII). Les *professions libérales* (VIII) *et les personnes vivant de leurs revenus* (IX) trouvent tout naturellement leur place à la suite des professions que nous venons de passer en revue.

---

[1] Quoted from *Cours élémentaire de Statistique Administrative*, 1896. Bertillon, p. 197.

[2] In the subdivisions Fishing is included in this Order,

“(D). Enfin, il convient d’établir trois divisions professionelles pour les individus non classés ou sans profession.”

D contains X, *Travail domestique* ; XI, *Désignations générales sans indication d’une industrie déterminée*; XII, *Improductifs, Profession inconnue.*

The International Institute approved this classification, and the 499 subdivisions to which it leads, in 1893.

The main grouping actually adopted in the French census is shown on pp. 60–1.

This classification (apart from the fact that persons living on their own means are regarded as akin to the members of the Liberal Professions instead of among the Unproductive) is at first sight systematic enough ; but as soon as one comes to details, it is seen to work out in quite an arbitrary manner. Public administration is getting more and more entangled with the direction of industry, and direction is not distinguished from employment in the subdivisions. Transport is hopelessly confused with processes of manufacture, and is not confined to taking goods to the places where they are to be consumed. There is no evident room for the carriers of messages (which are not raw materials transformed), for the provision of amusement,[1] and many other occupations not based on raw materials. The absence of any definition of occupation makes it not surprising that married women are catalogued under *Travail Domestique*, and persons temporarily out of work as unoccupied.

In the 1911 census of Great Britain a new classification is prepared in addition to the old, under the rather awkward distinction of Industry or Service as contrasted with Occupation. Here the main idea seems to be to classify persons according to the final object of their work, instead of by the materials they handle. The structure is built up of groups in common employment, instead of groups in similar occupations. Thus the cotton industry includes commercial clerks, carpenters, fitters, carters, porters and messengers, and others permanently employed by cotton firms, as well as those actually handling cotton. All persons employed by Local Authorities, e.g. road-labourers, gardeners, etc., are classed under "Municipal, Parish, and other Local or County Service" This is, of course, only a modification of the former method, but it proceeds on a more definite system. Its great advantage is that it is readily used in conjunction with the inquiries whose data are obtained from employers, such as the 1906 inquiry as to Wages and the 1907 census of Production. Where the investigation is by sample, as in the former, the whole numbers to which the results apply will be known. Where the inquiry is intended to be complete, as in the latter, a test of its sufficiency will be afforded. Obstacles will, however, remain. As governments extend their industrial activities, and as they employ more and more professional men, we shall find greater difficulty in computing the number of doctors, transport workers, suppliers of electricity, and so on, whenever we are not concerned with the status of their employer. This can be overcome by a division for every industry concerned; thus:—Engaged in Transport: (*a*) by private firms, (*b*) by government, (*c*) total.

---

[1] In the English census, an organ blower and a theatre programme boy are in the Subordinate Services of the Professions.

The best service that census compilers can render to the economist or sociologist is to publish the data in such minute detail that groupings can be made for any definable purpose. The difficulty is the practical one of the size and expense of the volume. The actual published arrangement and subtotals may be made to suit administrative needs in the first instance, if the system is readily intelligible and the titles without ambiguity.

We have still to consider the purposes that can be served by a sufficiently complete census of occupations. The most evident is the measurement of the extent to which a nation is engaged in or dependent upon particular industries; for this the statistics of occupation can be taken with the Census of Production. But this purpose and classification is outside my present subject.

A second end is a classification of individuals according to their economic function.

Unfortunately, from the point of view of simplicity, we cannot separate out a class of capitalists or of landowners; for ownership of capital apart from its direction, and ownership of land apart from its use, are not occupations, and very many owners have an occupation under which they can be classed. In order to include the whole nation, we must place every one in a category of occupied or of not occupied. The latter may be divided as living on the proceeds of property or dependent on owners or earners, but an intermediate class, or a grading, would also be necessary for those who were dependent for part of their income and owners in respect to the rest. Census statistics are capable of giving the numbers in the unoccupied class, but only partial estimates for the division into owners and dependants.

For those occupied the most obvious division appears at first sight to be between employers, employed, and workers on their own account, but in fact the categories are not mutually exclusive. Many people employed in industry are themselves employers of domestic servants; these we may readily decide to class as employed, basing our classification on the function by which income is obtained. A greater difficulty is in the case of those who work alongside their employees, not only directing but also making. Perhaps we could evade this by enlarging the employer class to contain the whole group, and thus have a simple dichotomy, (1) those who obtain their income by carrying out other persons' instructions, and not working directly for clients or customers—briefly, the employed—and (2) those who obtain their income by providing goods or services, with or without assistance, at their own will and with immediate relations with their clients or customers. Even so, many persons would belong at one time to the one class (as when a jobbing gardener was working for a day for an employer), and at another time to the other (as when he was planting his own garden for produce for the market). Thus, as is generally the case in classification of persons, we must either make an arbitrary delimitation instead of a definition by function, or allow for an intermediate class in which a continuous grading may exist according to the varying proportion in which the attributes of the two classes are mingled.

If we consider more closely the meaning of "employed," we come to a further difficulty. If we take employment, in this connexion, to mean the carrying out another person's instructions for the sake of reward, we find that A carries out B's instructions while B is acting on C's instructions, who in turn takes his orders from D. A, B and C would all be employees, but B and C would also, in fact, be employers. Cases occur, for example, in coal-mining and ship-building, where D does not even know the number or persons of his sub-employees (B and A), does not engage or dismiss them, and is not responsible for their wages. In such cases we might decide that, none the less, D should be one category, though it would need such a phrase as that given above (p. 68 (2)), rather than simply the word "employers," to describe it; and A, B and C should be in another, which might still be called "employed."

It may be suggested that a criterion might be found in the condition that an employee is entitled to his reward, if he carries out his instructions, whether the goods he handles are sold or not, or bring a profit to the employer or not. This would make a good supplementary test for some cases, but would afford a legal rather than a functional definition. With all these tests there would remain undecided the case of men who undertake contract work, as in quarrying; here they may bargain for the price at which a particular rock will be worked, and undertake the whole direction and employment of labour for the purpose. They are carrying out general instructions, and secure of their payment, but how they should be classed depends on the terms of their contract and the terms of the definition.

The solution of difficulties of this kind is to choose that definition for the main division which will leave each class as homogeneous as possible—i.e. with as many common characteristics, other than that implied in the definition, as possible—and then to subdivide each class into as many species as may be needed for any special purpose or suggested by the definition. Thus, if we take the definition just discussed, we should have (1) Employed: (*a*) Whenever occupied for gain, (*b*) In part of occupations for gain, with cross-divisions: (i) Not employing others; (ii) Employing others; and (2) Employers and direct workers, (*a*) Directing, not making, (*b*) Directing and making, (*c*) Making without help; with cross-divisions: (i) At will, with immediate relations with client, (ii) Under general instructions.

The most populous species are, of course, "Employed, whenever occupied for gain, and not employing others," and "Employer, directing, not making, at will, for client."

The Census of England and Wales has distinguished for some time between the classes Employer, Employed, and Working on own Account.

The German industrial census has a more complicated system of division, as follows:—

[Adapted from *Statistisches Jahrbuch für das Deutsche Reich*, 1913, p. 13.]

Berufsgliederung der Bevölkerung nach den Berufszählungen von 1907.

[000's omitted throughout in abstracting.]

I. Hauptberuflich Erwerbstätige insgesamt				26,176
Berufsstellung der hauptberuflich Erwerbstätigen				
a. Selbständige			6,049	
b. Angestellte:				
	1. Technische Betriebsleiter	171	1,588	
	2. Aufsichtspersonal	272		
	3. Verwaltungs- Rechnungs-Personal	323		
	[4. Andere	822]		
c. Arbeitskräfte:				
Lohnarbeiter	1. Mithelfende Angehörige	4,288	18,539	
	2. In gelernter Arbeit	6,916		
	3. In ungelernter Arbeit	6,016		
	[4. Andere	1,319		
II. Bei den hauptberuflich Erwerbstätigen lebende.				
Dienende			1,042	
Angehörige	unter 14 Jahren		18,740	
	14 Jahre und darüber alt		9,807	29,589
III. Berufslose Selbständige.			3,405	
[Bei ihnen lebende]				
Dienende			202	
Angehörige	unter 14 Jahren		643	
	14 Jahre und darüber alt		925	5,175
				60,940

This differs from the total population by the omission of the Army and Navy, and apparently of about 21,000 servants.

In the category "Employed," the classes that suggest themselves from observation of businesses are managers, clerks, foremen, skilled workers, unskilled workers. The corresponding lines of division would be between direction and carrying out orders, clerical work and handling materials, and grades of responsibility and skill. We do not, however, arrive at definite separations of individuals, even if we can separate functions. In a small business a paid manager does much secretarial and accounting work; foremen in large factories do much of the work done by managers or even employers in small concerns, while in other cases the foreman is only the leading workman. On railways the same man often does the clerical work of booking-up parcels and the manual work of loading them for the train. Skill is composed of so many constituents—intelligence, experience, knowledge, physical ability, trained technique—required in such different proportions, that, again, it is no simple task to grade or measure it. A navvy may be much more skilled than a carpenter; a ploughman needs a longer training than a plasterer. It is, I think, futile to attempt any universal definitions, and necessary to take industry by industry, and classify the various occupations on broad divisions with a margin of uncertainty, so far as to distinguish salaried management from subordinate work, and clerical from manual work. As regards subdivisions, the classification of clerks has hardly yet been attempted. The classification of manual workers must follow the custom of the trade, and hardly any test can be applied for degrees of skill except that of relative height of earnings (which is not necessarily determined by skill in the ordinary sense). In completing the account of employed we must leave room for apprentices, improvers, and other learners, either in a class by themselves or as attached to the occupation which they are learning.

Classification of degree of dependence.

Let us now return to the nation as a

whole, and consider the main divisions between owners, workers and dependants, and the relations between the dependants and the others. This will cut across the divisions by occupation, since workers are not necessarily independent. We are at once led to the study of the household and the family.[1] The best way to obtain completeness is to allot every individual to his most permanent place of residence, and then to make observations by places of residence.[2] The group in a household or tenement consists of the householder or occupier (the person responsible for the rent and rates), his relations, adopted relations (and rarely permanent visitors, unrelated, living as members of the family), lodgers and servants.

A study of the households of Reading, Northampton and Warrington[3] shows how gradually these classes shade one into the other. Lodgers may hire unfurnished rooms and do for themselves (in which case they may be classed as in separate households), or share a sitting-room or even a bedroom with the family; they may have their food in separate rooms or out of doors, or with the family, or breakfast alone, dine away, and sup with the family. A very usual arrangement is to have a separate bedroom and feed at the family table. A plausible definition of a lodger would thus be a person who pays an agreed sum for house-room, with or without food and services, but in fact that would not separate him from a grown son who pays a fixed sum to the householder and is quite ready to go into lodgings if he is not comfortable. The distinction by relationship does not readily help, for we find sons, stepsons, adopted sons, nephews, sons-in-law (widowers), grandsons, fathers, uncles, stepfathers and fathers-in-law—in every degree of relation-

---

[1] Before the analysis which follows we will suppose all persons in institutions dependent on public relief or charity classified separately, or all included in 1 (*a*) p. 56, "Entirely dependent."

[2] This ignores for the present gipsies, professional tramps, etc., and leaves sailors, bargemen, etc., not definitely placed, unless they are domesticated between their journeys.

[3] Here and subsequently reference is made to detailed inquiries in 1912–13 as to social conditions in Reading, Northampton, Warrington, and West Stanley (Durham).

The results of the first-named were published in the *Statistical Journal*, June, 1913. All have been issued in book form under the title *Livelihood and Poverty* (G. Bell & Son).

ship by blood or marriage—as persons who pay for room and food. Often the payments are irregular in amount, quite apart from debts. In the case of sons and daughters there is every variety of method, from the paying in the whole of small earnings, insufficient for expenses, as when a lad earns 3*s*. a week, to the paying of 12*s*. a week out of a wage of 30*s*. In practice an arbitrary line has to be drawn, including all near relations as members of the family, and others as lodgers.

A similar difficulty occurs in classifying domestic servants. Relations often join a household, receiving room and food for nothing, or at cheap rates, in return for general help in the house and with the children; there is every grade from this arrangement to completely paid service by a stranger who has her meals apart.

It seems hopeless to try to discriminate between the companion, the lady help, the governess, the nursery governess, the nurse, and so on to the scullery maid, when as we observe household after household we find all or any of these offices may be merged, and be undertaken with or without pay by near or distant relations. A working rule can be made by counting (as in the case of lodgers) near relations as members of the household, and other paid persons as in service.

Having separated the members of the household from lodgers on the one side and servants on the other, we can count lodgers and servants as independent,[1] and consider the mutual dependence of the household. The members can be classed as not contributing to the expenses, contributing less than their cost, contributing exactly their cost, and contributing more; but it is important to distinguish between a full share of all expenses (special costs and general costs) and the mere payment of a sum equal to that which would be saved if the member left: a share in a bedroom and a place at meals cost the householder very much less than an aliquot part of the whole expenses. Strictly speaking, a person is not independent if she can only pay her expenses when she is a member of a household already running for other purposes; but trades which depend on the existence of such persons are not parasitic, any more than a dog which sleeps in a stable for warmth is a parasite of a horse. It seems best to class such people as independent. Next come those who pay part of the general expenses as well as their special expenses, but not more than an aliquot part, if any arithmetic could be devised that would debit each member with a suitable share of the general expenses. Whereas the payment of special expenses begins almost directly a working-class child leaves school, it may be a few years before his wage pays a full share of expenses, and a further time before he would be acceptable as a lodger elsewhere. It was very noticeable in the Reading inquiry that when one elder child is at work the family is not below the poverty line, unless there are three or more dependent children; and, roughly, each earning child in addition allows room for one more dependent. The partly dependent class is relatively small. It contains those incapacitated by illness, age, or dullness from regular earnings; wives who occasionally go out to work; the young who are learning a skilled trade; young women of all classes, except the poorest, who work for dress and pocket money; beginners, idlers, and incapables of the richer classes, who receive an allowance to supplement their earnings, which are inadequate for their conventional standard.

---

[1] There remain the cases when a lodger is partly or wholly dependent on another household, or on public relief.

There remains, on the one hand, those who earn nothing, whether they are infants, school children, idlers, totally incapacitated, occupied but not for gain, or occupied in domestic work, and are completely dependent, and on the other, those who earn more than their general and special share of household expenses. Of the latter, some pay a fixed sum to the household, and their economic relation is much the same as if they were lodgers, with some profit to the housekeeper; these are the grown sons and daughters and relations; others pay over a larger sum, definitely to help the dependants. Frequently in the working class, and sometimes in richer classes, the husband gives all his earnings to his wife, and receives pocket money; in other cases he pays a fixed sum weekly for the household to manage on.

With the very great variety of constitution of households there are very many different kinds and degrees of dependants, but they generally fall into three main divisions. First, where there is an adult male householder in full working-vigour (in nine out of ten working-class households in the four special inquiries), it is generally the case that non-working children are dependent on him alone; secondly, where (in relatively few cases) his wife is also working, they share the burden; thirdly, where parents, ill or past work, without sufficient means are partly dependent on their grown-up children with whom they live, but may be dependent on absent children. The great majority of cases of dependence on relations, to judge from the Reading, Northampton, and Warrington inquiries, work out fairly easily in this grouping; but there are a relatively small number of households where two or more workers pool their earnings to support a miscellaneous family group.

There are no general statistics to show the number of dependants of special age or sex, classes or trades, but information is now accumulating which will at any rate throw considerable light on the numerical and other aspects of the question. It is quite clear from the inquiries named that the so-called normal family of a man, wife, three dependent children, and no other, earners or dependants, is comparatively rare, though many households pass through that stage.[1] In 2,144 working-class households were found 481 dependent adults (not wives or widows) and 3,371 dependent children, as shown in the table appended on page 83. Except for purposes of insurance or communal action, the averages resulting from these figures are of no direct use, but the detail (given in the reports) is very interesting. They show among other things the infinite variety of the obligations which earners have to meet and the very irregular incidence of dependent relationship, and they afford data (though insufficient) for giving numerical accounts of workmen's and workwomen's lives.

---

[1] In cases where the completed family contains exactly three children, there would be three dependent for about nine years; for larger families there would be three exactly between the birth of the third and fourth child, and between the times of leaving school of the last child but three and the last but two. In smaller families it cannot occur.

It cannot, of course, be assumed that the number of dependants is unconnected with the industry in which the worker is employed, or with his income. The birth-rate and infantile mortality rate vary greatly from place to place and occupation to occupation. The age at which a child becomes self-supporting is lower the poorer the parents.

	Northampton	Warrington	Reading	West Stanley	Together
Working-class Households:					
Number investigated	693	639	609	203	2,144
Number in which at least one man was at work . . .	624	592	529	183	1,928
Number of Non-earners:					
Wives and widows .	625	589	449	182	1,845
Others:					
Adult (males over 18, girls over 16)	93	132	174	82	481
Not adult . . .	870	1,142	977	382	3,371

Again, the lower the wage the more likely parents are to become dependent on their children. Part of the result, which an intensive study would be likely to show, may be thus stated: "The poorer the parents the more children there are to support at one period, and the more likelihood that they will also have their own parents to support at another." The numerical basis of such statements is at present very imperfect, but it is of supreme importance when any public measures of alleviation or assistance are proposed.

It is evident that any study of the number working in any industry with their dependants would be extremely complicated.

Classification by Social position.

We now come to the very troublesome problem of defining or describing social classes. We may consider either families or households or individuals; we may place them by birth, by rank, by occupation, by income, or by habits.

Birth will not give a classification, because it can only throw the problem back a generation. Rank will take us a very little way, though perhaps for some purposes, even in modern times, it may be worth while to enumerate the hereditary titles whose possession is a patent of nobility, and rank in the Army and Navy, and the learned professions; but official rank makes so little social difference except on ceremonial occasions, and affects so small a proportion of the population that it is not sociologically important.

We may suggest as a definition of a social class that it consists of a group of persons and their dependants (in the sense discussed above) who have intercourse on equal terms so far as sex and age allows. The determinants will then be occupation, income, and habits. It is at once clear that there can be no hard and fast line separating one class from another, and perhaps the most hopeful way of identifying classes will be to try to find a few distinct types and suppose people grouped in classes about those types which they most resemble. This is a task for a critic of life and manners rather than for a statistician, and I do not propose to attempt it at length.

As typical of the *upper class* we should take people of large and so-called independent means, in other words, owners of property on a considerable scale, who have acquired the habits appropriate to dignified leisure, to public service, or to the management of land or of persons on a large scale; with them we must group other persons whom they are pleased to admit into their ranks.

A glance at the census of occupations will show how sadly mixed the *professional class* is. Essentially it contains those who, having passed through a definite course of intellectual and technical training, have been admitted to the rank of clergyman, barrister, physician, etc., by competent authority. But teachers satisfy the definition very nearly, and there is an unbroken grading from a university professor to an uncertificated teacher in a village school, or a nursery governess. Musicians, artists, authors and actors have also an intellectual training and frequently a degree or diploma; but a street-musician,[1] a pavement-artist, a lithographer, a shorthand writer, and a pantomime child are at the other end of continuous scales of which the top is occupied by developed genius. An arbitrary separation must be made by the tests of intercourse and income, and at least three sections will be found.

---

[1] In the English census a street-singer is a musician,

Somewhere we must find room for people who will not have intercourse with a class they consider below them, and whom the class to which they aspire to will not admit—a very numerous body in all grades of society.

In industry and commerce we may distinguish an employing class, with numerous subdivisions based mainly on income, and an employed class, containing clerks and manual workers, as already discussed. Clerks (of similar ages) can only be graded arbitrarily by the test of income and intercourse.

It is evident that such classification is not definite, for the same family may contain members of each class so far named except manual workers, and intercourse may be complete. On the other hand,

---

an organgrinder is a worker in Sundry Industries, and a pavement-artist is without specified occupation.

family intercourse may become nominal or non-existent, while men as they grow older tend more and more to associate with others of similar habits, income and occupation. But the intercourse test will give lines cutting across the occupation test, since persons engaged in professions meet on equal terms those of similar incomes engaged in commerce. If we merge all in one great middle-class, we can imagine a grading by income which would nearly correspond to the test of intercourse.

To get any clear division between the middle and the manual-working class, we must deal with only adults in their final position. For the middle class is continually recruited from the working class: the children of artisans become clerks and teachers with increasing frequency; very often the girls become shop-assistants, milliners, dressmakers, and so on; more rarely they enter professions, or become employers.

A classification by social position can only be complete if we allow a place for the young, no longer dependent, who are passing out of their parents' class. Many cases were found in the town inquiries, which may be summarized as follows:

Status of Children compared with that of their Father.

Status of occupier.	*Status of children living with parents.*	*No. of Households.* North-ampton.	Warring-ton.	Read-ing.	*To-gether.*
Unskilled :					
	No children placed	60	154	146	360
	Children in same grade as father	13	66	75	154
	One or more children skilled or apprenticed	29	21	18	68
	One or more children employed as clerks	—	6	8	14
Skilled :					
	None	288	205	180	673
	Fallen	13	21	23	57
	Same	173	77	64	314
	Risen	22	11	12	45
Clerk :					
	None	11	14	18	43
	Fallen	2	4	2	8
	Same	—	4	—	4
	Risen	—	1	—	1
Not known or not male occupier		120	84	131	335
	Total	731	668	677	2,076
Superior houses not visited		153	13	150[1]	316
Whole sample of 1 in 20 (*circa*)		884	681	827	2,392

Summary :

Working-class households (male occupier):

No children placed	1,076	
Unchanged	472	665
Down	65	
Up	128	
	1,741	

---

[1] Approximate.

We can only make the observation in the relatively small number of households where there are children at work and still living with their parents.

Further details are given in the Appendix.

Mr. Booth gave a very interesting empirical classification in his *Life and Labour in London* (Final Volume, 1902, pp. 6 *seq.*), based for the richer classes on the number of persons per servant, and for the poorer on the number of persons per room. This is, of course, arbitrary, for well-to-do families of similar occupations and incomes vary greatly in their expenditure on rent and arrangements for service, while working-class families tend to take the best houses they can afford and then accommodate themselves to the house.

The manual working class is fairly well delimitated from others in this country. The fringe of men working on their own account is small, and most of them could be readily placed in one class or the other. Shop-assistants, however, are numerous and difficult to classify. Small holders, cultivating with their families, make a difficulty in classification when they are numerous.

The manual working class is, however, very minutely graded, as has often been remarked. The fear of stepping down a rung in the ladder of respectability is very strong, and quite free intercourse is very restricted in its scope. The division is not necessarily by income nor by occupation, but appears to be determined by habits and manners, which are, of course, partly dependent on income and work. The grading is very often easily observed from the kind of house inhabited, not only from its rent and accommodation, but perhaps principally from the respectability of the street in which it is situated. The actual locality of residence is, of course, one of the tests for all classes. No doubt the grading is different in kind in different towns. It would probably be feasible in any one town to mark off divisions of the working class by types: taking the foreman, or the highly skilled artisan, perhaps owning or acquiring house property, as one; the ordinarily skilled journeyman as a second; the machine-tending, partly skilled factory operative as a third; the untrained man in steady employ as a fourth; and the man irregularly employed in muscular labour, living from hand to mouth, as a fifth. The streets in which these typical persons live and the people they associate with might be found to give fairly distinct classes in many towns. The classification in the country would, of course, be different.

It is doubtful whether it is possible to divide a society into such well-defined social classes that a useful measurement could be made of the numbers in any class. Social structure is in a state of flux, former divisions are breaking down, and new lines of cleavage continually appear only to be modified within a generation. Mr. Stephen Reynolds and other writers specially well acquainted with manual workers have emphasized the gulf between "Them" and "Us," "Us" being manual workers in contact with natural forces or working for a wage with no security of tenure, and "Them" being persons with an adequate income and security against future privation. This, no doubt, represents a common attitude when the definitely rich and the less well paid manual workers are in contact; but in fact there are " Others " as well as Them and Us, and classes are not separated by steep vertical barriers, but rather there is a gentle inclined plane from the lowest to the highest. One can perhaps expand the metaphor by suggesting that progress from class to class is like the ascent of a much-fissured glacier, slippery and uncertain, with crevasses impossible to pass by some routes and easy by others, while from time to time the crevasses widen or close. In such a case we should make a map or plan by altitudes, and that corresponds to the method to which I now proceed.

CLASSIFICATION BY ORDER

R. M.

CHAPTER V

CLASSIFICATION BY ORDER

ORGANIC and functional classification break down when there are neither distinct types nor clear lines of division, but tabulation and measurement are possible if we can place the members of the nation, society, or group in order. The only order available for anything that corresponds to social grading is that by amount of income or of expenditure (e.g. expenditure on house rent). Postponing the definition of family and of individual income, we may suppose that we know the number of households whose income is over £10,000, between £10,000 and £5,000, £5,000 and £4,000, . . . £1,000 and £900, . . . or in any other irregular or uniform grading. We can then proceed by choosing income divisions that correspond to any conventional grouping; thus we might name those with more than £5,000 as wealthy or as upper class, those between £1,000 and £5,000 as well off, between £1,000 and £300 as of moderate means, between £300 and £120 as uncomfortably off (these divisions making the upper-middle, the middle, and the lower middle classes). Below £120 we might make three divisions, corresponding to skilled artisans (family income above £80), to men in moderate regular work (between £80 and £50), and to the poor (below £50). At the same time, if the data were sufficient, we could suppose the whole number of families placed in order of income, and divide them from top to bottom into (say) one-hundred grades numerically equal, and ascertain the incomes at the divisions between the grades; thus it might prove that one-hundredth of the households of the nation had over £2,000, another hundredth between £1,000 and £2,000, . . . ten hundredths in all above £200; in the denser parts of the scale it would be better to proceed by tenths instead of hundreds. We should thus tabulate the incomes which mark off successive grades and obtain a scale on which we could place any family or class. Thus the lower middle class would occupy the eighth to the twelfth grades from the top, perhaps, and a family with £50 the tenth grade from the bottom. This is an elaboration of Sir F. Galton's method of percentiles. By this method, wherever we find types or perceptible lines of division corresponding to occupations or habits, we could mark their position in relation to the whole. It would be advisable and easy to provide for the overlapping of incomes between the lower middle class and the artisan class, and also to distinguish between the town and country workmen, by separating them within those grades which both classes occupy. The whole method may be applied more easily to a fairly homogeneous class than to a heterogeneous nation.

When we have assigned the income dividing two grades, we could then make a detailed examination of the methods of expenditure and general habits of some families who had this income, and so obtain a set of specimens which could be compared with specimens of another nation or another date selected in a similar way. This method affords, in my opinion, the easiest, most definite and most accurate way of giving a general description of a large and multifarious group.

We must not, however, neglect an alternative method, that of searching for types and describing them. When we review the distribution of families or of individuals by income, we may perhaps find that the numbers are aggregated in the neighbourhood of certain incomes (which may be called typical), while in other regions there are few. The curve representing the whole may not proceed uniformly downwards, but may rise and fall. If the observations are massed closely round a type and become scarcer and scarcer, with a certain regularity as they diverge from it, we have indications of a definable class;[1] if after a certain distance the observations become more frequent, we have passed from one class to another. The difficulty in dealing with a whole modern nation is that the classes merge into each other till lines of demarcation are blurred.

---

[1] For example, *see* the statistics on pp. 112–3 below.

I now proceed to the analysis of income necessary for the tabulation by grades.

Classification of Individual Incomes.

For many purposes of classification and of estimates, statements of the money income of the head of a family would be sufficient, if information existed or were obtainable; for others we need to know all individual incomes; and for others, family incomes. We must examine the nature of each of these.

Economists generally speak of the national dividend or of the national product, as if all goods and services were first pooled together and then divided into the incomes of individuals; but from the statistical and sociological point of view we are concerned with the individual incomes first; we may afterwards suppose them heaped together when we wish to envisage the aggregate income of a class or nation.

For the present, we may take an individual's income roughly as that defined for the purpose of income-tax or as commonly measured in wage-statistics; but in both cases there is some lack of precision. From money income must be subtracted all payments for goods and services necessary for earning the income, so far as they are not otherwise desired; to it we must add the money value of all goods, services and privileges to which a person is entitled by the same right as to his money income. In these connexions we easily pass from the measurable to the non-measurable. A doctor and a costermonger need vehicles for business purposes and also use them for pleasure; a clerk must dress with certain respectability, but very likely prefers to do so; in such cases we should only subtract part of the outlay. On the other side, compulsory board and residence are in general valued at a less sum by the recipient than they cost the employer (since, apart from the restrictions they involve, the personal taste of the employee is not met), and are therefore difficult to assess as income; privileges, titles and position often go with employment, and though they cost nothing to the employer, enable him to pay less than he otherwise would have to; agricultural cottages, when available only for particular work, should neither be valued at the rent paid for them nor in accordance with the present cost of erecting a similar or better cottage, but as they would be by the occupier if a variety of other houses was available to him. The difficulty in most of these cases is the absence of any competitive criterion of value.

Perhaps the majority of workers have a restricted choice of residence, and this is a real factor in determining the value of their income; but otherwise most incomes are net (after obvious deductions for out-goings) and free of restriction in the spending, save for compulsory pension and insurance funds, and most are purely money incomes.

In dealing with a class the members of which are similarly placed as regards the nature of their remuneration, the difficulty can sometimes be evaded; for while dealing with the money wage only, we can make comparisons among the members and other analyses. Also, in computing the aggregate income of a class, we should definitely take the cash value that the employee would accept instead of payments in kind and privileges, without reference to the cost to the employer. The principal classes affected are the Army, Navy and Merchant Service, agricultural labourers, shop-assistants living in, domestic servants, and a certain number of teachers.

For statistical addition we can use the device of the margin. If an agricultural labourer receives 15*s*. a week and a cottage for 1*s*. 6*d*., we can probably say that the competitive value of the cottage and the value to the labourer are both between (say) 2*s*. and 3*s*. 6*d*., and that his wage so far is between 17*s*. and 18*s*. 6*d*., or 17*s*. 9*d*. ± 9*d*. If this uncertainty affected about half the agricultural labourers, it would result in a margin of ± one part in a thousand in the national wage bill for all industries. On the other hand, if we are comparing wages in two counties in one of which cottages were let at 1*s.* and in another similar cottages at 2*s.*, we should have no hesitation in adding 1*s.* to the former to make comparisons.

In considering the earners of all classes together, we ought to pay attention to any serious discontinuity or essential difference in spending habits, as we go down the scale of incomes and include different grades of occupation. It is common to find a skilled artisan in receipt of as high a money income as a clerk or teacher of the same age, and it is more common to find the family income in an artisan's household as great as that in a clerk's household. But the two families buy different goods and services, pay different prices for nearly identical goods, and their habits generally are quite dissimilar. In computing total national income there is, however, no alternative to adding the salaries to the wages; unless we are prepared for a hedonistic calculus applied throughout the scale of income, and compute how much more satisfaction a millionaire gets from his income than an unskilled labourer from his.

Professor Pareto has given a mathematical formula which tends to express the distribution of individual incomes in a nation, and it certainly has the merit of extreme simplicity and wide adaptability. Its simplest expression[1] is that the average of all incomes above any amount £x varies directly as x. Thus in the super-tax statistics for 1911-2 the average income above £5,000 is about £12,500, that of incomes above £10,000 is £22,700, above £100,000 is £184,000; if the law held absolutely, each of these multiples would be the same, instead of 2·5, 2·3 and 1·8. So far as can be judged from the Income-Tax statistics published by the Commissioners, such a law expresses well the individual incomes from £160 to £700 or somewhat higher, and has a tendency to express incomes in all ranges; but the same proportion (of average to standard) does not apply throughout, and various suggestions have been made[1] to deal with the discrepancy. It remains that in the range of incomes above wages it is established upon fair evidence that numbers tend to decrease as incomes increase with a rapidity closely related to the logarithms of incomes and numbers. Pareto's Law is inapplicable, at any rate in its simplest form, to the lower end of the scale, for it does not show that falling off of numbers of persons as the income approaches zero which, in fact, occurs. If we regard the incomes of the individuals or the incomes of the families of a nation as a statistical group, and represent them by a frequency curve where to each equal grade (say £10 by £10) of income, measured horizontally, an ordinate is erected to represent the number at that grade, then the curve is extremely skew; its highest point for families in the United Kingdom is probably in the neighbourhood of £100. If we represent £100 by an inch, we need a scale 1000 inches long to take in the incomes of £100,000, and even then we have not the maximum. Again, if we are to show the detail at the lower end, we must mark the number at every £10, and our vertical scale must show hundreds of thousands, whereas there are only 438 incomes altogether for the 500 £10 steps from £20,000 to £25,000. Now, if we proceed by equal ratios instead of equal amounts and numbers, both horizontally and vertically, that is, if we use a double logarithmic scale, the diagram will be telescoped and all the details brought into a small space. Pareto's Law states that the graph so obtained is a straight line, and this is obtained approximately for incomes over, say, £160. The details for the range £100 to £160 are not known.

---

[1] Pareto's formula is $N=\frac{A}{x^a}$, where N is the number of persons whose individual incomes are greater than x units. This gives that the number, y, whose income is £ $(x\pm\frac{1}{2})$, $=£\frac{aA}{x^{a+1}}$; the aggregate of incomes above £x is $\frac{Aa}{(a-1)\,x^{a-1}}$; and the average of incomes above £x is £ $\frac{ax}{a-1}$. A and a are constants.

Hence $\log y+(a+1)\log x=$ Const., and if $y'=\log y$ and $x'=\log x$ are plotted, we obtain a straight line.

---

[1] See "The British Super-tax and the distribution of incomes," *Quarterly Journal of Economics*, February, 1914, by the present writer; and "A new illustration of Pareto's Law," *Statistical Journal*, 1914, by J. C. Stamp.

On the other hand, if we separate out

classes by occupations or by industries, we find that both the wages and salaries curves are very much less skew, and, in fact, have a general resemblance to the normal curve of error, and are even more allied to the skew curves which Professor Karl Pearson has made familiar. There is a definite type, and the numbers become rapidly less as the amounts deviate from the typical above or below. The results of the Wage Census of 1906 show this very clearly in great detail, and the same general appearance is obtained whether we take occupations singly, or industries, or group all the results together. Where there are recognized time rates it might be expected that the majority in an occupation in a locality would all receive the same amount; but it is difficult to find such cases, and as soon as the same occupations in different localities, or different occupations in the same locality, are merged, curves appear.

It is the great defect of agricultural wage statistics that they are nearly always in the form of predominant rates or averages for districts, and there is no means of estimating the variation of individual earnings.

In the case of women's wages, the data suggest less variation at first sight, but examination of the detail shows no essential difference in this respect.

The variation of income within occupational classes is due to two causes whose effects cannot be disentangled with our present information. A boy or girl, or young man or woman, increases his or her rate of wages during the first few years in an occupation; in general, the lower the final rate of payment the more quickly it is obtained, and in unskilled trades there is often no avenue for further progress. Increases are received in some cases after mere lapse of time, with hardly any increased call on the worker; in other cases they come with the ability to take more responsibility or to do more difficult work; in others by promotion to a higher grade in the occupation or to another occupation. With piece rates the earnings rise so long as the workman improves his skill or pace. Except in those cases (Civil Service and allied occupations) where there is a regular routine of increase, very little indeed is known of the numerical effects of this process, though, of course, arrangements and customs generally recognized in an industry can be ascertained. In the Wage Census an arbitrary division by age is made, and males over twenty years are classed as men, females over eighteen as women; but this gives no help for the problem.

The other cause of variation is difference of ability and industry between persons of the same age and standing in an occupation. Of course, it may be true (as is often supposed) that standardization of rates of wages may prevent this difference having effect, and it is a question on which evidence is much needed; but employers do not willingly pay men more than they are worth, nor do men stay if they are receiving less than they are worth, if they are able to move. The better men, in fact, frequently move to the better wages. Where piece rates are paid variation has, of course, much greater, if not full play. In the cotton trade, where very elaborate lists are compiled with the definite intention of making earnings depend only on the worker and not on material or machinery, it is possible to observe the variation in detail; and it is very interesting to see how closely the earnings of women weavers and men mule-spinners conform in their grouping to the normal curve of error. The figures for 1906 are as follows:

LANCASHIRE AND CHESHIRE COTTON INDUSTRY.

Men Spinners (self-acting mules; all counts).

Full week's earnings.	Numbers recorded.	Numbers from closest normal curve.
Under 25*s.*	67	36
25*s.* to 30*s.*	185	146
30*s.* to 35*s.*	357	474
35*s.* to 40*s.*	871	969
40*s.* to 45*s.*	1,525	1,324
45*s.* to 50*s.*	1,185	1,194
50*s.* to 55*s.*	683	709
55*s.* to 60*s.*	224	277
60*s.* and over	115	83

Percentage misfit, 11·7.

Women Weavers (4 looms).

Full week's earnings.	Numbers recorded.	Numbers from closest normal curve.
Under 15*s.*	412	174
15*s.* to 20*s.*	2,866	3,646
20*s.* to 25*s.*	13,520	12,278
25*s.* to 30*s.*	7,189	7,763
30*s.* to 35*s.*	739	923
35*s.* and over	77	19

Percentage misfit, 12·4.

The statistics of the first wage census of 1886, though they are formed partly by tabulating averages and not individuals' earnings, give for men a fairly definite indication of two normal groups,[1] one with its centre at 22*s*. 3*d*., corresponding to unskilled work, and the other with its centre at 29*s*. 6*d*., corresponding to skilled. But the tendency has so long been to destroy any sharp distinction between skill and its absence by the growth of machine-minding and other partly skilled occupations that we cannot expect to continue to make this distinction.

Since a man's responsibilities generally increase from the time of his marriage till the time when his children begin to earn, the increase of wages or salaries with age is of the greatest importance. No serious investigations have, so far as I know, been made to find in what occupations there is a prospect of progress for the industrious. The bearing of this on the standard of living will become more obvious in the next section.

---

[1] *Statistical Journal*, 1902, p. 351.

That income from ownership increases with age has been carefully demonstrated by Mr. Mallet.[1] Since the same persons very frequently own property and are also earners, and the ownership has very little to do (after a man is once placed) with the amount of earnings, it would very likely be interesting and advantageous to measure these groups as quite distinct. The material for such a study is now accumulating, and there are signs that Paretor's Law applies better to "unearned" and earned incomes separately than when they are merged together.[2] But apart from the difficulty of getting a workable and satisfactory definition of unearned income, it is still necessary to deal with the whole incomes of individuals (whatever its source) in order to get an ordered classification of the whole nation.

When all the curves of frequency of incomes of all the classes which can be separately studied are put together, the resulting curve is dominated by the sizes and averages, rather than by the shapes, of the separate curves; the result of the medley is the logarithmic grouping already described. The highest part consists almost purely of unearned incomes, while in the lower part earned are of most importance.

---

[1] "A method of estimating capital wealth from the Estate Duty statistics," *Statistical Journal*, 1908, p. 67. By B. Mallet.

[2] Ref. to *Quarterly Journal*, p. 107 *supra*.

So far I have spoken mainly of individual incomes; but it would evidently be futile to place all persons in the order of their income, without correction for age and standing, if we proposed to substitute this order for an organic classification. It does not seem practicable simply to strike out immature incomes: in the case of professional men, the maximum incomes are not reached till years after they are settled in their social and economic position; in the case of very many women's occupations the income is temporary and the status unsettled till marriage alters the circumstances, while if the woman does not marry, her existing income may prove to be mature. We must then consider whether family income will serve as a means of classification by order.

Classification of Incomes: Family Incomes.

Let us suppose that we have sufficiently complete information as to earners and dependants in all households. The alternatives as to individuals are that they live as members of families, or as servants, or by themselves, or as lodgers, or in some group other than a family group. Let us accept the definitions as to membership of a family and of lodgers suggested above (p. 77). The family then consists of any group of persons nearly related by blood or marriage or by adoption, who in general sleep in the same tenement and have a common table. This is the normal mode of life and embraces the great majority of the people of the United Kingdom. It would be best to keep open a double tabulation by income—one column for families, the other for individuals. In the latter column we should place all persons living by themselves, single lodgers, members of a voluntary group (e.g., of a college) classed as individuals, similarly persons living together for any common work (e.g., shop assistants), domestic servants, and also persons in institutions (workhouses, prisons, etc.). In the main the second column would consist of independent individuals with none dependent on them. The first column would consist of mixed groups of dependants and independants, with or without responsibilities. I doubt whether any satisfactory general rule can be made for mingling the second column completely with the first, in order to get any grading into social classes or industrial classes including dependants, but a series of more or less arbitrary rules could be made for dealing with great sections of this second column. Thus all working girls not living with their families could be classed with those families whose daughters of the same age earn about equal wages (making some allowance for board and lodging), and similarly with working lads; clerks and young professionals would be classed with commercial and professional families, manual workers with manual workers. Adults could be placed with those families where the principal adult earner or owner had a similar income obtained in a similar way. Then the numbers in any particular grade formed in the family income scale, say incomes from £100 to £120, would consist of a number of persons (dependants and earners) united in families whose joint income was within this limit, and a number of individuals not living as members of families whose individual incomes equalled those of corresponding individuals of the family. It would be necessary to keep open in this particular range the division between manual workers and others. I have followed out the analysis so far, not because I suggest that this method is practicable in its entirety with existing information, but to show the extreme complexity of any division into classes allied to social classes. I have now to point out that the result of grading by family income would depend quite as much on the age and sex constitution of the family as on the position of the earners or owners in it. To rectify this it would be necessary to devise a scale for each grade, based on the idea of a normal family, somewhat as follows: If the normal family is taken as having one man and one other wage-earner, a family with an additional wage-earner would be supposed to be deprived of his or her contribution to the family income, and a family which lacked a wage-earner would be credited with an imaginary addition, for placing in the scale, allowance being made for sex and age. Thus in the range £100 to £120 we should have the members of all families whose principal male wage-earner received, say, £80 to £90, and whose subsidiary earners, if any, were in that kind of occupation where a lad earned £30, or a girl £20. A scheme could, I think, be devised into which the great majority of the population would fit, with a margin; but it would be highly artificial, and so far the data only exist for the working-class parts of those towns which have been the subjects of special investigation.

Another possible method is classification by annual values of houses, though this would also require many artificial rules if the whole population was included. All investigations which throw light on the relation of rent to income, and of rent to family income and size of family combined, would be helpful in establishing the lines of this classification. The statistics of the Reading inquiry have been examined (by the mathematical method of partial correlation) from this point of view, with the following result (not included in the published accounts):

AVERAGE RENTS IN SHILLINGS (AND DECIMALS OF A SHILLING).

Number of equivalent adults.[1]

Household weekly incomes.	1	1½	2	2½	3	3½	4	4½	5	5½	6 or more
Shillings.											
Under 17	4·3	4·9	4·0	4·9	5·7	—	4·0	4·5	—	—	—
17–19	—	—	5·5	5·4	5·1	4·5	—	—	5·2	—	4·0
20–22	5·7	5·6	5·3	5·8	6·0	5·8	5·1	4·5	—	5·2	5·0
23–25	—	5·6	6·2	5·7	5·7	5·7	5·7	5·8	5·9	—	6·0
26–28	—	—	5·4	5·9	6·5	5·6	6·6	5·7	6·5	—	—
29–31	6	6·3	6·3	6·1	6·4	6·5	6·1	5·7	7·0	—	—
32–34	—	—	6·1	5·7	6·4	5·9	5·4	5·7	6·4	—	7·0
35–37	—	—	7·0	6·0	6·3	6·0	6·6	8·7	6·5	5·6	5·2
38–40	—	—	9·0	6·6	7·9	6·7	6·3	6·5	5·5	6·7	6·5
41–43	—	—	—	6·0	6·1	7·0	5·7	6·9	5·9	6·1	5·6
44–46	—	—	—	10·0	7·7	6·0	5·6	7·1	9·0	7·2	6·0
47–52	—	—	10·0	—	7·0	—	6·6	6·5	6·2	6·0	6·5
53–61	—	—	—	—	6·5	—	6·5	7·9	6·3	6·0	6·8
62 and over	—	—	—	—	7·0	—	8·2	7·2	9·7	6·4	7·0

When the method of partial correlation

---

[1] Children under 5 years were counted as ¼, children from 5 to 14 as ½, and boys of 14 to 18 and girls 14 to 16 as ¾; older persons as 1.

is applied to the (more detailed) data, the following equation for the line of regression is obtained:[1]

$$z = -1{\cdot}78x + {\cdot}65y.$$

where z^d is the excess of rent over its average (6*s.* 1*d.*), x is the excess of the number of equivalent adults over its average (3·29 persons), and y shillings is the excess of income over its average (31*s.* 9*d.*). Thus for equal family incomes the rent *decreases* with the number of persons (1⅔*d.* per person), and for families of equal sizes the rent increases with the income (⅔*d.* per shilling).

As the family increases in size wants press more on income and less tends to be spent on rent, but this tendency is slight and the data irregular. On the other hand, the tendency to increased rent with increased income is clearly shown in the table, and confirmed by the calculation. These results are more evident when the equation is written:

$$\frac{z}{\sigma_z} = -{\cdot}136\frac{x}{\sigma_x} + {\cdot}532\frac{y}{\sigma_y}$$

---

[1] The constants involved are $\sigma_x = 1{\cdot}2$, $\sigma_y = 13{\cdot}0$, $\sigma_z = 16{\cdot}0$; $r_{yz} = {\cdot}458$, $r_{xz} = {\cdot}152$, $r_{xy} = {\cdot}543$

NATURE OF FAMILY INCOME

CHAPTER VI

NATURE OF FAMILY INCOME

I PASS on from the use of income statistics for purposes of classification to the consideration of the nature of family or household income and its measurement. By whatever method we delimitate the family, we shall find a great variety in the number and nature of individual incomes that are received by its members. The simplest method is, of course, to define income and define membership of a family, and then to add the incomes of individuals to obtain family income. This is reasonable, so long as we do not make the tacit assumption that all these incomes are pooled, and then the money or goods and services purchased with the total are distributed by some mutual or matriarchal arrangement. For, in fact, nearly every recipient of an income, except young children, asserts some claim to private ownership of it. A common method is for the earners to pay definite sums to the housewife, from which she pays the rent and for the food, for other common expenses, and for the clothes of those children who earn nothing or do not earn enough. In other households the principal earner or owner may pay the rent, rates, and other definite outgoings, while he makes a fixed weekly or monthly allowance for housekeeping. The cases where there is more than one income and the whole is pooled are probably in the minority; but there are very many households, in fact, the majority of those where there are no earners other than the father, mother, and non-adult children, where the great part of income is pooled, while the earners keep a definite weekly amount for their personal expenditure, including clothes. As the girls and boys grow older and earn more than the minimum necessary for maintenance, they become more and more of the nature of lodgers; they may insist on special food, and may base their personal expenditure on a standard definitely higher than that of their family. In the inquiries already referred to, it was very generally found that the housewife was very communicative as to the sums of money that passed through her hands, but often she did not even know the amounts earned by her husband or adult children. In the poorer households, when there is a definite and united attempt made to maintain a standard of sufficiency, very nearly the whole of all incomes is pooled; in well-to-do composite households, where there is no difficulty in obtaining the standard of comfort desired, the privately spent income may be large. When we are considering the sufficiency of income in relation to any assigned standard, we must therefore make two categories, one when we take the total income of all members and suppose it spendable directly with the view of ensuring that every member reaches the standard, and the other when we take the actual sum in the hands of the housewife and consider it in relation to that part of expenditure for which she is responsible. Formally, perhaps, we should make a third category of the relation of the income of each person to the needs of those for whom he or she is legally responsible.

There are many practical difficulties in estimating incomes where there are lodgers. As already pointed out, there is every grade from the case where the lodger is a paying guest (in middle-class phrase) to the case where a person makes her living by taking a house and letting furnished apartments with service, and the case where rooms not needed by the family are let unfurnished. Lodgers' payments may be divided into contributions to the rent, payment for food, payment for services, and profit to the landlady; these cannot be disentangled precisely, but in practice reasonable estimates can be made in ordinary cases. In the town inquiries we reckoned that lodgers paid part of the rent and that the housewife also made a few shillings a week profit in return for her services. No doubt a logical definition could be formed, but so much depends on whether the lodger occupies space that would otherwise be vacant, or whether a larger house is taken for the purpose of receiving lodgers, that a definition would be difficult to apply. Somewhat kindred ambiguities are found with families where home-work is done; some part of the rent should be debited to the receipts from it.

A further problem arises when we consider how far work done in and about the house by the inhabitants should be valued and reckoned as income. Where vegetables, fruit, or flowers are grown in a garden or allotment, their value is income, but before reckoning it, the rent of the ground (if that can be determined apart from the building) and expenses of seeds and tools should be subtracted; in amateur gardening it might easily happen that the remainder was negative, though possibly balanced by the pleasure obtained in anticipation and the health invigorated by cultivation. Practically the only important cases are allotments and cottage gardens of the nature of allotments, and in these cases estimates are not difficult to make correctly, within, say, 6*d*. per week.

Putting aside the unimportant questions of how to deal with small repairs, etc., which one man will do for himself and for which another will pay an outside workman, we come to the treatment of women's household work. The only basis for valuing this would be to reckon the cost of having it done by paid help if the wife did none of it; but apart from the fact that much of it would be different in kind—for example, the difference between a mother's and a nurse's handling of children—the valuation would not be reasonable, for the paid work would not be directed in the same way to satisfy the most urgent needs, nor fitted into odd times. I do not think that any general attempt to value these services would result in valid measurement. We may evade the difficulty, however, by using two methods of reckoning simultaneously and applying that which is most suitable to any problem or classification in hand. One is to regard family income as of two parts—one measurable and the other composed of incommensurable services; so long as we are dealing only with a class in which the practice of having servants or of not having servants is universal, no difficulty arises in comparison. The other method is to subtract the expenses of domestic help; this applies where the women go out to work, or work for gain at home, and in consequence pay for such help,[1] which they would otherwise not need. Then the expenses of the help may be subtracted.

The servant-keeping class, as a whole, is poorer in comparison with others, in so far as the wife or daughters do not render services. The total income of a class and the total national income do not include unpaid services on this method of reckoning.

---

[1] If a servant is kept only because there are lodgers, her expenses should be deducted from family income.

PRODUCTION AND CONSUMPTION

CHAPTER VII

PRODUCTION AND CONSUMPTION

In very simple conditions of society it might be possible to reckon individual and family production in terms of commodities; but with actual division of labour this is not practicable, and the only measure of the value of production is the sum of money paid for it, and this measure involves the theory of pure economics, that every factor in production is paid in accordance with its share in the production.

We can get a step further when we consider production by industrial groups as a whole, but only when we merge land, capital and labour together. Thus estimates can be made of the total crops, dairy produce, meat, etc., produced by the agricultural community; of the amount of coal raised; of pig-iron manufactured, and so on. Each stage in complication of manufacture makes the reckoning more difficult, since the products are heterogeneous and not additive. It is only in very simple cases that we can compare productive efficiency per person. For any large survey we are driven to the net value produced by a firm's or group of firms' activities. It would be interesting and important to find on the one side how much is allotted respectively to rent, interest, profits, salaries, and wages from the receipts of various industries, and on the other side how individuals' incomes are built up of these constituents; but this would be an economic rather than a sociological analysis, and is only remotely connected with production by classes.

The more promising line of approach may be from the side of consumption. Whether we are considering individuals, groups or nations, there is the equation that the money value of goods and services produced or received equals value of goods and services consumed or used plus value saved. Consumption is generally a personal matter, and we should be able to enumerate and describe, as well as measure, consumption by families and individuals. Further, we should be able to find the total of particular commodities (e.g., meat) consumed by classes and add them up for the nation. Where this can be done, we can verify the estimates by comparing with the total produced in or imported into the country. The difference between the consumptive and productive measurements for the whole nation, regarded as a group which produces, exports, imports, consumes, and saves, is one of practicability rather than of theory. The final stage of production (including transport and dealing) is the delivery of the finished goods ready for use to the consumer. It is at this stage that we can decide what goods can usefully be measured (so many pounds of meat or bread, etc.) and what can only be valued (so many pounds or shillings spent in amusement or rent).

In considering expenditure, we ought

to put on one side that which is paid compulsorily in taxes, rates, and insurance, and examine how far it is onerous and how far merely co-operative or substituted payment for goods or services received. With houses where rates are included in the rent it is often troublesome to determine what part of the rent is due to rates. We should also mark that part of expenditure which is, or may be regarded as, necessary for the particular occupations, but not leading to personal satisfaction. The remainder then is spent freely.

We evidently need detailed accounts of expenditure of households or groups who consume in common; and in fact a very great number of family budgets have been collected, officially and otherwise, at various dates and in several countries. It may be said at once that the material thus obtained is interesting, instructive and adequate for many purposes as regards principal expenditure; but it is rough, imperfect and partial, as might be expected from consideration of its essential difficulties.

We ought to have, for a family for a

sufficiently long period to be typical (probably a year), on the one side a complete account of all the income (including privileges and payments in kind) of all its members, and an account of the goods possessed at the beginning of the period; on the other side we should have a statement of all expenditure, stating quantities where the goods purchased were measurable, so complete that when allowance was made for the change in goods possessed at the end of the period the two sides should balance. Relatively few people have the patience, perseverance, willingness and skill to keep such accounts. In fact, budgets very often do not balance; though some items of expenditure are evidently underestimated, still expenditure often exceeds apparent income. In fewer cases a considerable part of income is not accounted for.

We have also to face the very troublesome obstacle to systematic estimates of class expenditure, that the very fact that a person is willing and able to keep such accounts shows that he has unusual characteristics which are probably reflected in his expenditure. He is likely to be more economic and systematic, more in the habit of balancing the future against the present, less given to consumption of alcohol, and perhaps of tobacco, or to expenditure on amusements, than the average of his class. This will influence the amount available for food and for clothes. The more we aim at detail and completeness the more this bias will become effective.

There is very great uncertainty in the nature of goods purchased. A loaf or a pound of bread or of flour seems fairly definite, but actually there is enormous variety in their constituents, digestibility, and nourishing power, from time to time, town to town and shop to shop. Meat is evidently very troublesome to define by quality. Moreover there are very few standardized food or drink commodities; almost the only standard aimed at by the retailer is that of price, and price keeps steady and the trade description unchanged while the constituents alter over a considerable range. Even if physiological chemistry were sufficiently advanced to determine nutritive values, we should still be far from measuring the satisfaction coming from consumption. It is more difficult to deal with clothes even than food, and of course out of the question to measure amusements.

The result is that we can only obtain very general ideas as to consumption. Thus we may find that a class of families of nearly the same size and distribution by age, and with nearly the same income, in a given district and at a given time, buy on an average so much meat, bread, and groceries, whose kind we can test at their favourite shops and stores. We can make a similar tabulation for another group, and possibly go so far as to say that there is no obvious difference between the quality of the commodities bought, and in fact that the consumption of one group is definitely of so much more bread, meat, tea and sugar than of the other. If we keep within a fairly narrow range of classes, localities and periods, it will very likely be the case that the measurable differences are obviously more important than imperceptible variations in quality, and we may be able to make such statements as that one class is more adequately fed than another, or that one is underfed and another wasteful; but we do not arrive at any numerical measurement, unless we can use the device of the margin to limit our uncertainty, and this is not generally possible. None the less, carefully drawn descriptions arranged for comparison may make a very good substitute for measurements, which are, after all, means of forming judgments and not the judgments themselves. It is, therefore, worth while to make both extensive and intensive studies of expenditure, if we bear in mind the limitations of the results.

When the classes are much separated in habits, income, place, nationality, or date, it is very doubtful whether numerical comparisons can be made; it is best to choose, on arithmetical principles, representative families of defined classes, and then to tabulate simply the budgets, describing as exactly as possible the commodities, without attempting to say that one class consumes 10 per cent more than another. It is only in the cases where the differences in the general nature of expenditure can be shown to be slight that numerical comparisons of cost of living are valid. Extreme care is needed in interpreting such a statement, as that the cost of living is 50 per cent higher in U.S.A. than in England.

We can proceed with more security on another line of analysis. It is customary to classify expenditure under such categories as food, drink, clothes, fuel, light, rent, insurance, and so on. If we pay no attention to the actual quantities bought, but only to their cost and their place in this classification, we can compare the amounts spent for various purposes with total income, and make many interesting comparisons. We should first define carefully the class under investigation, by any of the methods already discussed. We can then investigate the relations between the proportions and amounts spent on rent, food, etc., and the size and constitution of the households within the class; and also examine the proportions and amounts in similar households in different classes, at different periods, and even in different nations. A good deal of fairly systematic work has been done in this direction, but much of it is diminished in value because the budgets are averaged and not given individually. The result is that a student is dependent on the grouping made by the investigator, which may (for example) merge children of all ages, or otherwise obscure important lines of division. Also from the purely statistical point of view the test of precision, which depends on knowing the variations about the averages, cannot be applied. Thus in the "2nd Fiscal Blue-book," Cd. 2,337, we learn that in 382 families whose weekly income was between 35*s.* and 40*s.*, 6*s.* 5*d.* was the average expenditure on meat and bacon; but we do not know whether the majority of the families spent within 6*d.* of this amount, or whether the variation was wide, and hence we cannot judge the sufficiency of the numbers included to give an average within, say, 3*d*.

Naturally most attention has been given to working-class budgets, because there is more likely to be insufficiency (possibly remediable) in these, and the progress of the working classes has interested social reformers more than other developments. But the sufficiency of incomes to meet other standards is of importance, and from the descriptive point of view there is no reason why we should not study all classes. Work has been and is being done in this direction as regards the middle class, and it is perhaps specially important as regards the large number of isolated workers, young men and young women, who are struggling to reach a standard higher than their incomes allow.

THE STANDARD OF LIVING

CHAPTER VIII

THE STANDARD OF LIVING

Conventional Standards.

CLOSELY connected with income and expenditure is the standard of living, a phrase to which I hope to attach a definite meaning, if not measurement.

Let us suppose that we have got so far in delimitation of classes, by methods already discussed, that we can select types —such as the agricultural labourer in the Midlands with an income from all sources of £45 per annum, or a town artisan at 35*s.* a week, or a clerk with £200 per annum—which occupy a central position in a defined class, and can also be placed on a definite grade in the national scale of incomes, e.g., the agricultural labourer on, say, the fifth of the hundred steps (p. 98).

We should select normal married men in ordinary health and regular work, at some definite stage in their lifetime, e.g., the period of maximum responsibility, the age when their family is completed and none of the children have left school. In the so-called working classes a suitable age would be about 35, and earnings would then have reached their maximum. With the middle and professional classes five to ten years later would be suitable; earnings may not be at their maximum, but the standard is in general fairly established by that time. We should take a family typical of its class in as many respects as possible—not with the arithmetical average of measurable characteristics, but with the mode (in the statistician's sense) of characteristics. In the working classes we shall soon have enough information to establish the type in wages, in number of living children, and in some other respects.

For example, our process of selection might lead us to an artisan employed in engineering in a town of 150,000 to 250,000 inhabitants at 34 to 38 shillings a week, married, wife living, aged 35 to 40, with four dependent children, three at school and one at home, as typical of a large class of artisans, whose numbers we could estimate, and which we could fit into a general classification of the nation. We should then study a number of persons in the particular circumstances defined, and see how far they varied in their method of expenditure. It would, at any rate, in many classes be found that there was no great divergence among the majority of the class. Not only is originality rare and the influence of custom universal, but convention is very strong. In some cases any great divergence from the mode in residence or of living and clothing would make a man unacceptable to his employer, in others to his fellow-workmen. In many cases there is no alternative as to housing, and little variety in the goods sold at accessible shops. So far as these considerations apply, the mode is truly representative. In many classes expenditure on house-rent, food and clothes is practically determined by the custom of the class; but expenditure on insurance, amusement, tobacco, drink, subscriptions, books, and other things not of primary necessity may vary greatly, when the income leaves a margin for such things. It is to a great extent in the variation of free expenditure and in the employment of leisure time that individuality has play.

While on the one hand the study of incomes and an ordering of the households of a nation in accordance with incomes (allowing for personnel of family) should enable us to select types tentatively; on the other, the study of the amount of resemblance in expenditure and customs of the families in the neighbourhood of the types should help us to find lines of division by which we can separate classes. If, in fact, we find that normal families with an income of £40 to £60 are found in similar houses and with food expenditure similar in amount and choice, and that families with an income of £60 to £90 inhabit a different type of house, have a more liberal and varied diet, and dress differently from the poorer class, but closely resemble each other, and so on up the scale, we have made considerable progress in class definition and description. There is no doubt that in this way we shall find a very great number of classes, or sub-classes, as soon as we consider any characteristic besides income. It would first be advisable to treat England, Wales, Scotland, and perhaps three parts of Ireland (N.E., S.E., and W.) separately; next, to take five divisions in relation to aggregation and density, such as, (1) London, Liverpool, Manchester, Birmingham, Sheffield, Glasgow, Edinburgh; (2) other manufacturing towns and County Boroughs, with population over 50,000; (3) less dense manufacturing districts; (4) mining districts; (5) country districts, with a moderate number of areal divisions. In each of these urban or geographical divisions we should be prepared to find, perhaps, five sub-classes of manual workers in ascending scale of incomes (casual, regular unskilled, partly skilled, artisans, foremen and highly skilled), and several sub-classes of the so-called middle class. Having defined these sub-classes by the income of normal families and the amounts spent in rent and food, we ought (if our classification were successful) to find relatively slight variation about distinct averages as regards other measurable attributes[1] (such as expenditure on insurance and on amusement; age of marriage, and size of family). If so, we should be justified in speaking, for example, of "the ordinary unskilled workman in towns of moderate size" as if we could generalize about his characteristics.

Each of these sub-classes has at any particular time a nearly definite standard of living capable of description, quantitative in respect of part of expenditure, qualitative as regards the rest. The individual members still show a considerable variation in personal habits; the families vary greatly as to size and age, partly because of the various ages of the chief earners, partly from natural variation; and to every class there is a fringe of young workers and bachelors and spinsters, not living as members of a family.

---

[1] I.e. the curves of frequency representing the variation of the quantities would have small standard deviation.

A considerable mass of data is available for studying these standards in the Labour Department's Reports on Wages and Cost of Living (Cd. 3864 and 6955), in reports on Agricultural Labourers (e.g. Cd. 2376), and in private investigations. But together they do not make a complete systematic account of the whole of the working classes of the United Kingdom for any date, and a great deal can still be usefully attempted in filling out the descriptions.

The standards of living so far considered are those actually attained by defined classes. It is an almost universal experience that when any particular income has been received by a class for a sufficient period to have become customary, that the standard fits the income or is raised (more rarely lowered) in response to its change, so that income not pre-allotted to particular expenditure is rare; there are many unsatisfied wants pressing on this scanty margin, and there is a struggle to make income meet expenditure over all ranges of income up to (say) £1,000 a year; it may be still felt at £100,000. The standard that exhausts the income soon becomes customary and conventional, and the goods bought are regarded as necessaries of life. Again, in many cases in modern times, especially in the middle class, people are anxious to live, or to appear to live, at a standard proper to the possession of a larger income, and are thus always badly or uncomfortably off. It is well known that standards differ greatly in different countries for classes whose occupation and education are similar; and it is evident that standards are arbitrary and conventional. During the latter half of the nineteenth century, wages, both nominal and real, increased so considerably that it may not be an exaggeration to say that at the end of it an unskilled labourer had in many respects reached the standard of an artisan in 1850. Since the rise was slow and cumulative, it would not be noticed by the individual, who is more concerned with the growth of his wages as he approaches maturity, than with the question whether at the age of thirty he is earning 5*s*. more than a man of his age doing similar work twenty years previously, or whether the prices of bread and meat had fallen or risen 1*d*. the loaf or pound in that period. It is quite likely that he is not doing the same kind of work as his father, that he does not live in the same kind of house, and that he cannot easily compare the way in which he and his young children live with the partially forgotten regime of his early days. In particular, he may in a town find it difficult to assess the return he gets for his probably greater expenditure in rent. Again, it very generally happens that a man's family expenses increase more rapidly than his rate of wages, so that personally he faces a falling standard as he reaches middle life. None the less wages for similar work may be gradually mounting and the conventional standard of his class be rising. If prices are falling and money wages stationary, it is quite likely that the standard will not press so rapidly on income; while if money wages are rising, even if prices are rising equally, the extra coins may be used in buying goods which cannot really be afforded. Whatever the cause, it appears that people do not feel any the better off, or have any greater unallotted margin, because an older generation got along with less money and higher prices.

Thus it happens that one hears of claims for minimum wages, which, when analysed, mean the cost of the highest conventional standard so far reached by the class, though it is often implied that the minimum has some relation to a minimum subsistence wage. The continual striving to obtain and establish a progressively higher standard has been the policy of organized labour for generations, and has probably had satisfactory and far-reaching results; in so far as a higher standard means more efficient production, it has paid for itself, and in so far as it has involved better care and nourishment of children and more adequate house-room, it pays over again in the next generation. On the other hand, a very great deal of the improvement in all classes has been wasted by a continual straining after what I may call conventional uselessnesses, by which one group tries to mark itself off as superior to another group; and there is a foolish and costly race to maintain and destroy this division, where the competitors waste their breath and the gap remains. No one can estimate how much is spent on the trappings of respectability or on the desire for show. This is quite unconnected with the supposed increased expenditure on amusements and travelling, which there seems no need to condemn, and which may be financed by a decreased expenditure on drink.

In describing the standards of living, we should proceed by the method of family budgets discussed above, pp. 138 *seq*. Since a large proportion of income (perhaps varying from one-twelfth to one third in different classes) is spent on rent (including rates), and the house is of special importance in judging of social standing, it would be well to deal in detail with the accommodation, situation, disabilities or amenities of the house and garden of the typical family in each class. So strong is the feeling of conventional necessity, that workmen not infrequently regard rent as deductive before they have the spending of their wages, whatever type of house they live in, and it is doubtful whether they allow sufficient weight to the generally improved accommodation and convenience that is found in modern artisan houses, when measuring or denying the progress of the standard of their class. This may be due in part to the fact that daily travelling is frequently an alternative to higher rent, and that travelling to work is often properly deductive in reckoning net income, or to the fact that in the case of the more expensive rents in crowded towns the payment is not for satisfactions enjoyed, but is high only because the alternative uses of the ground are valuable. Without entering upon the question as to whether rates are deductive, I point out that the lighting, cleaning and good order of the streets, and the facilities for education, have a definite place in the standard of living.

After housing, clothing is the most distinctive characteristic of a class, but it is very difficult to suggest any systematic way of measuring or describing clothing. If budgets were complete, we could find the customary expenditure, and distinguish the important and frequently recurrent item, boots, from the rest. But, since people in buying dress pay attention perhaps as much to appearance as to durability (when we include both sexes), it is evidently impossible to measure the intrinsic value of clothes; and since the actual textures used vary so greatly and change so often, and the relative expenses of raw material, manufacture and making have probably changed greatly in recent times and are different from one class to another, it is useless to take only a money measure, and say (for example) an artisan buys a suit of clothes for 35*s*. and a labourer for 20*s*., or whatever the figures might be. The furthest we can go as to this part of expenditure is to state the expenditure and describe the result class by class.

For expenditure in food, the details given in budgets are more complete. The relations between standards can be studied by the amounts spent on bread (and other cereal products), tea, sugar, meat (distinguishing sundries, hog products and butcher's meat), milk, butter, eggs, and potatoes, to name the principal commodities which appear in all but the poorest budgets, but in very different proportions; and a rising standard is shown by increasing expenditure, especially on meat, and perhaps milk and eggs, which are regarded as semi-luxuries. The amount of bread, potatoes, and perhaps tea and sugar, is nearly satiated in quite small incomes; as the scale rises, the consumption of other items rapidly approaches a maximum. When sufficient quantity of food is obtained, there is another ascent in quality and in variety, and finally an indefinite possibility of expenditure in pure luxury. Our definite information ceases at the stage of sufficiency, with some reference to quality, among the better-paid working-classes. The description for the lower middle class is only beginning, and there is no statistical information to the detailed expenditure of the rich.

While it is natural, when searching for a type and making measurements which describe the standard for a class, to emphasize the similarity of the members and the homogeneity of the class, it is necessary after the numerical description is given to remember that there is in reality infinite variety and that the resemblances are rather superficial. One family will live in comfort and decency on a sum which leaves another family underfed and badly clothed, even though the money is allotted in much the same way. This kind of variation is outside the sphere of statistical measurement, even though artificial measurements by order might conceivably be attempted; for the differences are only the outward signs of moral characteristics, and a moral calculus is likely to be purely academic and unreal. None the less, non-measurable mental habits are of the first importance to the social reformer. For the same general reasons it does not appear worth while to try to reduce to the routine of statistics expenditure on luxuries and amusements, whether harmful or harmless, as gambling, betting, alcohol, tobacco, games and shows. In these cases, estimates of the *total* expenditure of a class would be useful, in order to show how far the surplus was harmlessly or badly expended, whether legislative reforms or the application of moral influences were needed, or whether they were successful. But since these expenditures are so irregularly spread within a class and have so little relation to the specialities of the class, it is best not to include them in a description of the standard of living.

By the standard of living, then, I understand a composite of the goods and services obtained in nearly the same quantities by normal families whose general mode of life is similar, and by an economic class I understand a group with a definite standard differing in respect of recognizable and measurable characteristics from other groups in the same society or nation.

Minimum Standards.

As already noted, the phrase standard of living tends to be confused with the phrase minimum standard, and this readily merges into standard of minimum subsistence. We can perhaps restore clearness to the conceptions by using the phrase, "the conventional and customary standard" of a class, when we mean that which has just been discussed; by speaking of the trade-union minimum standard when we mean a standard which a group of workers are consciously endeavouring to attain or preserve; and by introducing the word subsistence whenever we are thinking of the minimum on which work can actually be carried on. I now propose to analyse this last conception.

We should distinguish throughout between the minimum subsistence for an individual and the minimum for a family or for a person with dependants. Actually the family minimum is the complex obtained by combining (not necessarily by simply adding) the individual minima of its members, and the question of how or by whom the cost of providing these minima should be met is essentially different from that of establishing the minimum standards themselves.

Actually little attention is paid to the minimum ration on which life can be preserved, without any qualification. It would be at least implied that health, as well as life, should be preserved, and health is not a definite condition—even perfect health is indefinable. Further, there is generally reference to a certain efficiency for work or for other occupation, and efficiency is another of the words which appears to have a clear meaning, but is in reality as vague as heat or fine weather. In engineering, efficiency is simply a ratio between energy obtained to energy used, and varies from zero to unity. In common speech more definiteness is obtained by saying maximum efficiency, but then efficiency has lost its meaning, for we might as well say maximum output. A certain definiteness would belong to the phrase, "the minimum subsistence necessary for maximum productivity," but that is quite different from a minimum standard as generally understood. We ought rather to regard health and output or efficiency as dependent on the amount of food and other necessities available, and say that output is a function of consumption alike in machines, animals, and men. The idea of a minimum would then only be involved in choice of food, etc., so as to obtain the amount of nourishment to which a certain output corresponds, for the minimum cost in money; here it is the output or efficiency that is first assigned and the minimum expenditure deduced. In point of fact, this is very nearly the method followed by Mr. Rowntree and the authorities on whom he depends, for the amounts of nourishment required by men at leisure, in ordinary work, and in hard work are considered. The difficulty is to define the hardness of the work sufficiently closely to have the nourishment determined within narrow limits.

The most important result of these considerations is that we cannot say that this sum of money is sufficient and that insufficient, drawing a hard and fast line, but only that on an assigned sum a describable and measurable degree of health and output can be maintained. If the sum is increased, health within certain limits would be better and the output greater, if decreased the worker would be less hearty and capable. The rate of change of health and output corresponding to a given change of amount of nourishment is quite unknown. If we regarded a man simply as a producer of utilities, like a horse, there would be a definite position where the cost of an increase in nourishment would exactly equal the increased value of output, just as in preparing a field there is an economically determinable amount of fertilizer that will just pay. This position of equilibrium or equality would be reached at quite different levels with different kinds of work and in different economic positions. It may be as low as six annas a day for a coolie and as high as $5 for a skilled artisan. It depends on the marginal value of the man's work (and that depends on the number of men available) and also on the cost of the particular nourishment necessary for increased efficiency. An equilibrium may be obtained with low living and slow working, or with luxurious living and high pressure, but not with low living and high pressure. It is quite conceivable that agricultural wages may be in equilibrium at 2*s*. a day in Ireland and 4*s*. in the Scotch Lowlands, and coal-hewers' at 8*s*. a day, but there is nothing to prove that established wages are in equilibrium in this sense.

The problem has been approached from the physiologico-chemical standpoint, and the amount of energy-producing and of tissue-forming substances actually used, and not wasted, by men doing various kinds of work have been estimated. Ordinary foods have been analysed to determine the amount of these substances contained in them, and dietaries have been drawn up that are theoretically sufficient for work of certain intensity. But I think that it is admitted there is a good deal of uncertainty about the results, and that a large amount of careful and very difficult work is still necessary, especially as to the relation between food consumed and food actually utilized, which must be extremely variable from person to person, and as to the merits of different kinds of food. I have, therefore, still to be convinced that the scale of diet made familiar by Mr. Rowntree has that definiteness which is so often assumed by people who quote his results. I rather regard it as a useful arbitrary measurement of a low scale of living, by the help of which we can compare populations in respect of the adequacy of their wages; it makes a useful and intelligible line, even if it is not possible to accept it as the Poverty Line, which divides the poor from those who have a competence. There is not, and cannot be, any such division except an arbitrary one, for every quantity involved varies continuously from grade to grade.

This analysis explains the paradox that the food ration used by Mr. Rowntree as a minimum is more liberal, so far as can be judged, than that obtained by the majority of the working class even in Europe now, and by the great bulk of unskilled and agricultural labourers in England before the end of the fall of prices in 1895. The human race has got along on a standard below this minimum, though it may have been hungry, with imperfect health, a high death-rate, and a low standard of efficiency. It is very important to recognize this, for it has come as a surprise to many people to learn what a large proportion of even an advanced population is insufficiently fed (unless at the sacrifice of expenditure in other directions), since they have not realized that the diet obtainable from wages of unskilled labour has in past times been generally too low for work of a high grade, and that the poor and the working class were really interchangeable terms in past generations.

I will not stop to discuss the difficulties of assigning corresponding standards to men, women and children, at work and not at work, or of making allowance for habit in diet which prevents people getting the maximum nutriment for their money, or the awkward consideration that the cheapest food in purchasing may be expensive to cook. I am rather inclined to think that such details are unimportant till the standard is on a firmer basis, and that all we can at present get is a carefully-devised descriptive scale corresponding to some arbitrary standard which we recognize as undesirably low.

If we are establishing a minimum standard of food, we ought also to make one for other necessary expenditures. These are house-room, fuel, those household utensils and materials without which the food cannot be cooked or the house used, and clothes. There is again the confusion between the house which medical authority would pronounce adequate for perfect health, the cheapest house which can be obtained, and the minimum of shelter which will preserve life; though the first is a maximum rather than a minimum, not obtainable at present by the majority of the nation, and in the last people are not permitted to live. It is evident that any standard of housing must be conventional, and this statement will easily be supported by describing housing methods at other times and in other nations. The only minimum we can name is the worst accommodation obtainable that authority will allow to be used within possible distance of work. This minimum is, of course, rising, as ideas of housing change and local authorities enforce more drastic regulations. It may be noticed that houseroom tends to become more adequate simply because the size of the family diminishes with the falling birth-rate. The opinion is quite tenable that the poor are forced to pay for a standard of housing higher than they obtain in food, and that they would make more of their income if they were worse housed and better fed.

If we once realize that washing, the use of knives and forks, sleeping in beds, sitting on chairs, using carpets and kitchen ranges, are all conventions, which many people dispense with, we see that there can be no necessary minimum expenditure on household utensils, though standards have to be enforced for the safety and health of people who are compelled to live in a crowded town.

Clothes are in this climate more definitely necessary, but second-hand clothes are so cheaply obtained and so difficult to value, that minimum expenditure can hardly be stated. Boots are perhaps more personal and less enduring than coats, but it is quite doubtful whether they are necessary.

Thus estimates of necessary expenditure on other objects than food are really conventional; they measure (in Mr. Rowntree's scale) the minimum standard accepted by, or possible to, the poorest class carrying on a regular household existence, and are dominated by the standard of living otherwise determined at the time and place. Nevertheless, it is very useful to have a definite measure for testing progress and comparing societies.

[It is well to remember that the Speenhamland scale in 1795, which was intended to make the agricultural labourer as well off as before that date in spite of the rise of prices, assigned weekly money wages equal to the value of 26 lb. of bread (of second flour) for a man and about 13 lb. for a woman or child. At the prices of 1900 in York best bread cost about 3*s*. for 26 lb., and this is precisely Mr. Rowntree's estimate of the minimum food expenditure for an adult, while he allows 2*s*. 3*d*. for a child. In order to reach Mr. Rowntree's minimum, if we assume that the prices of sugar, tea and other food, taken together, bore the same relation to bread in 1795 and 1900 (which is sufficiently close for comparison, since bread was then the principal item of expenditure), the wife would have had to earn an additional 1*s*. 6*d*. and the children on an average an additional 9*d*., while rent and all other expenses would have had to be met by allowances and harvest and other extra earnings or gifts. Mr. Rowntree's food standard is therefore considerably higher than that of the South of England labourer prior to 1795, at any rate for families where there are young children. The scale was reduced considerably by 1831, when the equivalent of 60 lb. was the arranged money wage for a man with a wife and four children, instead of the 90 lb. of 1795. (See Hammond, *The Village Labourer*, p. 163 and p. 185).]

When determining whether a household is above or below a given standard, it is natural to pool the earnings and other income of all the members of the household and compare the total with the standard as built up for the sex and ages concerned; this shows whether the household could attain the standard; but if any of the income is spent by individuals on their own less urgent wants, of course the sum available for food might be too little. In considering the sufficiency of the income to keep the family up to the standard, it is proper to include all money from poor relief, pensions, charity, and the value of gifts; but in the equally important question of the economic position of the family, relief, charity and gifts (except from relatives who help to support dependent parents) should be excluded. In practice this distinction is not very important, for relief and charity are frequently insufficient to raise a destitute family to the standard.

The Poverty Line.

The connexion in which Mr. Rowntree's standard is most generally used is in considering what wage is the least on which an adult workman can meet his responsibilities, and it is very generally assumed that it should be sufficient for him to maintain three dependent children and his wife. This is a useful and simple standard, but it requires analysis. If the idea is that wages must be sufficient to allow the next generation to be brought up under parental responsibility, four children per family is probably barely enough to give a very moderate increase of population, when allowance is made for the unmarried and the barren and for deaths before maturity.[1] Again, the minimum would fail for large families and be unnecessarily high for very small families. Further, there are in many families dependants other than children, namely, parents who are past work and have no resources, and adult brothers and sisters who through ill-health or incapacity cannot support themselves. The numbers of dependants in certain towns were given on p. 83.

---

[1] There do not appear to have been many systematic investigations as to the relation between the number of children per family and the growth of population. A rough computation suggests that with the existing death rates of England and Wales if four children were born per

In considering a somewhat hypothetical society, we might argue that a man's parents ought to be in a position to provide for their own old age, and that incapable adults should only be supported by their brothers and sisters if they have already fulfilled their obligations to their own wives and children. Further, the older children as they get to work should not have to contribute

---

marriage, 2·7 per marriage would reach maturity; these would have to replace their parents and also a share of the unmarried of the previous generation, and provide the increment for a generation. The Scotch census of 1911 shows that the average number of children per completed family (where the mother was over 45 years) was 5·5. Even with this high average the natural increase of Scotland (excess of births over deaths) was only about 1·1 per cent. per annum *circa* the year 1900.

to the younger ones' support, lest they should fall into poverty themselves. I do not mean that this family help is to be deprecated, but that it should not be necessary. Moreover, we ought not to omit the reasonable ability of the wife to earn before the birth of the first child and after the last child has reached school age, when we are considering a minimum standard. Finally, if the parents have before marriage, during the period that they are earning more than the minimum for single persons, saved enough to furnish and start a household, it is as much as can be expected, and it is reasonable to desire that they should be able to meet annual expenses out of income. It would then be easy to compute the minimum expenditure needed year by year for an ordinary growing family. On the basis used for Reading in 1912, with a minimum estimate for rent, the minimum at marriage would be 16*s*. weekly and would rise gradually to about 25*s*. in five years and 28*s*. in ten years, provided that there were four children, all surviving. It would remain at 28*s*. for a further five years, and then fall back to 16*s*. as the children became self-supporting; each additional child would add 2*s*. or 3*s*. a week to the family expenditure during fourteen years. If the man's earnings averaged 25*s*. weekly throughout the period, and he always saved any excess above the minimum, he could just meet the standard for four children without any earnings on the part of his wife. If, as might very well be the case, he married on 20*s*. and increased to 27*s*. by the end of ten years, he could attain the same minimum. In both cases his wife could raise the standard by occasional work after the youngest child was at school. It might be argued on this basis that a man was unable to fulfil his legal reponsibilities and bring up a family large enough for a progressive population on the very niggardly standard in question, unless he had a regular weekly wage of 27*s*. by the time he was thirty years old, or ten years after his marriage. In spite of the vagueness of the standard, we can use a calculation of this kind as a useful test of the sufficiency for fairly definite purposes of the wages in different occupations. We should have to raise it or lower it according as the minimum rent for a house was above or below the 5*s*. 6*d*. reckoned as the least for a five-roomed house in Reading, and lessen it if we take an inferior standard for housing. We must also make allowance for all possibilities of supplementing income beyond a standing wage (allotments, overtime, even earnings of the older school-children), but on the other hand we should allow for failure of work and illness. Finally, it must be emphasized that it is not known whether a ten per cent. change up or down would seriously affect efficiency.

In recent times estimates have been made as to the minimum on which a single worker, especially a woman, can live. If she has no responsibilities and lives as a member of a household, on the minimum scale just discussed, she needs about 6*s*. per week to include her share of the rent in a town of moderate rentals. This sum should be raised when for her employment she has to dress more expensively, or if we include her payment for domestic services, which she cannot dispense with, and for which her work does not leave time or strength, or if she has to lodge away from her relations and the landlady makes profit. The minimum arrived at in this way is hardly comparable with that already discussed, because it involves more convention. Its discussion would lead to the difficult question of subsidized earnings (where a lad or young woman does not earn his full living but is partly supported by his or her parents), and even further into the difference between marginal wages and minimum wages than in the case of family earnings. The problem as to how far women's earnings are sufficient for the support of their dependants in broken families requires more knowledge of the facts than we yet have,[1] and also a difficult analysis of the nature of dependence.

The establishment of a scientific standard of the kind attempted in the previous paragraphs is no doubt important in itself for determining what wages are sufficient from particular economic and social points of view, but is partly vitiated by the vagueness of its basis; it can, however, be used quite definitely for a very important social measurement of a different nature, namely, the comparison of two societies separated in place or time. When we have made definite working rules for the calculation of a standard for all kinds of families, it does not matter if they are somewhat arbitrary when we use them for comparison on a broad basis. Thus, to say that 15 per cent. of the families of a district are below a certain standard of living, has an absolute meaning only if the standard corresponds to a clear definition of insufficiency or poverty, or if we can visualize the standard by describing the condition of a typical family just at the margin, and it will tend to be vitiated by every imperfection or indefiniteness of measurement. But when we say that in two districts, or in the same district at different dates, the proportions were respectively 10 per cent. and 15 per cent., the ratio of these numbers is little affected by arbitrariness of standard or imperfection of working rules, if both measurements have been made in precisely the same way, and if the populations are generally similar in age constitution. Thus, if we have over-estimated the value of women's occasional work, or the cost of feeding young children, or the regularity of work, or if in any respect the standard does not correspond to the minimum for efficiency or whatever its ultimate basis is intended to be, these errors will tend to affect both the percentages in the same direction and (in many cases) by nearly the same amount. This statement depends (so far as it needs justification) on the general theory of averages, but it can be very often tested by working through the two sets of data by a modified set of rules, and seeing how the resulting proportions vary. The same idea applies to many measurements imperfect in themselves; for example, the test of overcrowding, which results in such a statement that 10 per cent. of the population of a town live in tenements where there are more than two people to a room, is very imperfect for separate households (since crowding depends on age of persons and size of room), is less imperfect for the town as a whole, and forms a good basis for comparison with other towns where the average size of rooms is the same as in the first. In all such cases, however, it is wise not to depend upon theoretical principles till their applicability to the problem has been tested ; and it must be remembered that differences that are found may result from dissimilarities other than those we wish to observe. Thus it might happen that in one town three small bedrooms were the fashion, while in another two larger ones of the same total size were usual ; the measurement of overcrowding would then reflect the size of the rooms and not the cubic or areal space per person. It is therefore necessary before making numerical comparisons of social conditions in different places to have an intimate knowledge of the general habits of the people and of the general conditions of occupation and living, and to restrict the measurement to those factors which are not vitiated by differences of custom.

---

[1] Information has been collected, but not yet completely published, by the Fabian Women's Group, which will show how far women and girls do use part of their earnings to support their relatives.

It is very doubtful whether numerical comparisons of standards can be safely made between two countries; neither housing, clothing nor food are comparable, the importance of that part of income which is not wages varies greatly, and many things must be bought in one country which are unnecessary or are home-made, home-grown, or obtained freely in another. Nor should we compare industrial classes, such as workmen engaged in building or engineering or printing, in different countries, since methods and conditions of work vary enormously, unless we make very broad allowances for the possible effects of such variation. The only method of comparison that seems to me valid is one which has not yet been carried out. If we could place the families of each of two nations in order of income, as discussed, pp. 97 *seq.*, above, we could pick out a family in each nation one-tenth of the way up the scale which was typical of families in that grade, and place side by side (without numerical comparison) descriptions of the standards of living obtained by the two selected families; and we could repeat the process at each tenth of the scale.[1]

Care is needed to distinguish between such statements as that 10 *per cent. of the working class households* of a town are below an assigned standard, 8 *per cent. of the households* of a town are below, 13 *per cent. of the working-class population* or 11 *per cent. of the whole population* are below. It is best (for the main statement) to take the whole town as divisor, not only the working class, since the definition of the working class must be vague, and to take the number of individuals rather than of households, so as to include lodgers and detached workers. It is also of interest and importance to give separately the proportions by age, sex, and dependence, so as to notice what groups are most affected by insufficiency; for example, a much larger proportion of all children than of all adults is found in poor households, for the double reason that families are larger and size of family is a cause of poverty.

Finally, it is very important to distinguish between families where there is an adult male wage-earner in ordinarily regular work, the father of the children, if any, and families broken by the death or illness of its natural supporter. Remedial measures for poverty would be quite different in these cases. Also it might happen that in two towns where the percentages below the line were (say) 10 and 15, 8 per cent. in each might come from abnormality of the family, while the remaining 2 in one and 7 in the other were due to lowness of wage. The facts measured by the ratio 2 to 7 are quite as important as those measured by the ratio 10 to 15.

---

[1] See "A suggestion for the international comparison of wages by the use of the Median," *Stat. Journal*, 1909, pp. 618–623.

I have written as though the standard were used for measuring amount of poverty because that has been the case so far; but we evidently might use similar standards for measuring the proportion that were wealthy or in any degree of comfort.

When we have material for making comparisons over a period of years, it will be interesting to test how far the diminution of the birth rate and of the size of the family has resulted in the maintenance of a higher standard of living.

ECONOMIC PROGRESS

CHAPTER IX

ECONOMIC PROGRESS

In the previous sections I have discussed the definition of a nation or society, and analysed the classification of the individuals and families which compose it by the process of placing them in order of economic prosperity and selecting lines of division. I then suggested methods of selecting families, in some cases typical of classes that could be adequately described, and in other cases occupying a numerical, defined position in the economic scale. The measurement of the economic condition of a society is completed when the number of its members (classified by age, sex, and civil condition) is known, and the standard of living of the selected families (together with their constitution and the nature of the occupation of their earners) is fully described. I have also proposed a secondary measurement on the basis of first defining a standard of living and then ascertaining what proportions of a society attain or fail to attain it.

I now proceed to consider how the progress of the whole nation or society can be measured.

Population.

First, we must consider the number of persons to be included in a nation. As discussed above (p. 18), we have three categories: (1) those who are legally subjects of a monarch or citizens of a state and resident in its territory, (2) subjects or citizens resident outside the territory, (3) foreigners resident in the territory; these should as far as possible be kept distinct.

Since the population is heterogeneous in age and sex, the statistics of the growth of the total are not complete till the proportions of different groups are analysed. It is, of course, conceivable that birth, death, marriage and fertility rates should all be constant and that a population should grow by equal expansion of all age groups, unaffected by emigration or immigration; and these rates might be different in different nations, each of which preserved its own age distribution.

Actually all these rates have changed considerably in the last thirty years, and many nations have been affected by migration of groups of special ages and sex. In some countries the proportion of men in the prime of life has diminished relatively to the population owing to continued emigration. In others that have become settled, the abnormalities have gradually been removed. In Great Britain the fall in the birth and death rates, diminished fertility, and probably a rise in the average age of marriage, have modified the composition of the nation in a very marked way, which is showing itself in the falsification of many forecasts, administrative and actuarial. Whereas in 1881, for example, there were 163 men between the ages of twenty-five and fifty-five per 1,000 of the population enumerated in Great Britain, there were as many as 189 in 1911. For these purposes it is advisable to treat Ireland separately, since her population has been subject to different influences. In Germany the proportions were 180 in 1910, in France nearly 200 in 1906, and in U.S.A. 202 in 1901. This kind of analysis is suitable when we are considering the productive ability of the inhabitants or its potential military strength. Other groupings would be necessary if we were considering the number of persons supported by the productions of the territory, since at different ages quite different amounts are needed and consumed. I do not know of any purpose for which crude statements of the rate of growth of total population are useful, except for showing differences whose cause should be sought.

It is not to be assumed that growth of population necessarily involves progress. The words of Isaiah (ix. 3) in the Authorized Version are: "Thou hast multiplied the nation and not increased the joy"; but in the Revised Version we read: "Thou hast increased the joy." This alternative is precisely that which economists have to consider, only they would speak of the determination of that number whose marginal productivity was a maximum. For statistical purposes we should regard the number and growth of the population, after attention has been paid to its change in composition, simply as a framework into which other measurements can be fitted.

Money Income.

The economic progress of an individual might be considered by tabulating his income year by year and placing it in relation both with his natural responsibilities and with his labour in obtaining it. For a society, we should similarly consider the total income, the amount of work devoted to obtaining it, and the number of dependants or non-effectives to be supported; but we must add a reference to the distribution of the income. It is customary to divide estimates of national aggregates by the number of the enumerated population and give *per capita* results thus: the value of Foreign Trade (Imports and Exports together) is £25 per head, the average income is estimated at £45, the average of capital owned as £200, and so on. Such averages by themselves are open to two valid criticisms—the first, that neither the numerator nor denominator are homogeneous, and that the relationship between items in numerator and items in denominator varies enormously; the second, that for nearly all practical purposes the distribution about the average is as important as the average itself. As already emphasized, it is in the analysis of the change of these averages from time to time that their use is found.

The aggregate income of a nation consists of receipts from ownership, payments in return for work, and the value of unpaid services, together with some less important items. We cannot, however, estimate it readily in these divisions, for income derived from use of capital by its owner (included under the term profits) contains an inseparable proportion of earnings, and (as shown above) unpaid services are very often incapable of valuation. Practically two methods have been used for estimating the total income, and both ignore unpaid services. One is from the side of production, as in the report of the Census of Production, where the net product of all firms producing material commodities is ascertained as far as possible, and estimates are added for the value of transport, dealing, utilities derived from the direct use of capital, goods, and services; this is evidently a mixed measurement, which is only made complete by including a good deal from the side of consumption. The second method is to ascertain the income of groups of individuals and of corporations, and add them together. As is well known, the Inland Revenue Tax Commissioners do not ascertain the incomes of all individuals who are subject to the tax, since it has hitherto proved unnecessary for the adequate collection of the money; it has been sufficient to require returns from individuals of only that part of income which cannot be taxed at its source, and to ascertain individual incomes only in those cases where relief was claimed or where there might be liability to super-tax. Consequently we can only estimate the incomes of individuals by the use of Pareto's law (p. 106) or some other method of approximation. There are no official statements, even of the aggregates,[1] of incomes below £160.

We cannot make a successful private investigation, even by sample, of the incomes of any but the working class, and perhaps of others with small salaries, for people are unwilling to disclose the amounts of their incomes, especially when they are derived from property. We are therefore dependent for knowledge of incomes above £160 on the definitions, data and tabulations of the Inland Revenue Commissioners. On the whole it is possible to identify fairly closely the sums that correspond to income in the economic sense, when the details of abatements and exemptions are carefully handled, but there are two large classes where there is no guarantee that the estimates are correct. Traders make their own returns of their profits, and if they do not keep accounts that could be audited there is no means of verifying their statements of income, which it is to their interest to underestimate, and the actual definition of profits is by no means simple; there is accordingly considerable uncertainty as to the adequacy of the returns under Schedule D. Again, farmers are not expected by the authorities to keep accounts, and their income from cultivation is simply estimated as one-third of the rent they pay. A farmer paying rent for 479 acres at £1 per acre would, therefore, be assessed at £159 13*s*. 4*d*., and be exempt from tax. Common observation would suggest that he and his family are living on a higher standard than a clerk's family in a town receiving £160 a year; the basis is very arbitrary, and so crude that even if it were correct for farmers in one district, it would be incorrect for those in another. It would, however, be possible for agricultural experts to estimate limits for farmers' incomes, within perhaps 25 per cent of the total; but for traders there seems no method for determining what error may be involved.

---

[1] The Board of Trade has given rather vague estimates of the total of wages, but these are not official statements of ascertained facts in the ordinary sense.

Income derived from ownership can be

identified, and the Inland Revenue Commissioners have probably sufficient powers already to complete their survey of it. That part on which tax is paid (whether returned or not) is known, and the sums which are received untaxed by persons whose total income is less than £160, and which are not in all cases tabulated in the Commissioners' Report, are not a large proportion of the whole.

Earned income, not subject to tax, is generally estimated by investigating the average salaries and wages of various classes and multiplying them by the supposed number of persons in these classes. The most difficult cases are the profits of small traders and manufacturers, and of those salaried occupations and professions where a considerable proportion have more than £160, for we need to know then the average, not of the whole class, but of that part which is not liable to income tax. However carefully intermediate income (that is income below £160 and not regarded as wages of manual labour) is estimated, the margin of error must be large; but the limits of this error can be fairly well assigned, if we can depend on the estimates of the numbers in the classes.

As regards wage-earners, we depend chiefly on reports of average weekly wages, which are elaborate and have no great margin of error. The difficulty is to know what allowance is to be made for holidays without pay, sickness, unemployment and overtime. Information is accumulating as to most of these doubtful factors. There is the further difficulty that a considerable number of persons, who return themselves as belonging to a specified occupation at the census, may be quite irregularly employed, and generally the number and earnings of casual workers are not known.

The aggregate result of all these uncertainties may be a margin of 10 per cent of error on the estimated total of incomes, apart from difficulties of definition. Fortunately most of the errors in estimates are in the same direction at different periods; omissions in returns of profits will always be omissions, an overestimate of the number in a class will be repeated, and so on; so that the movement of the total income can be estimated more accurately than the income itself, especially if very careful attention is paid to changes in method and efficiency of assessments and estimates.

The income generally estimated is that of persons living in the country, or deriving income from the country. This is evidently a mixed total, and if the method was adopted in all countries, the apparent total income of the world would include a great deal of duplication. The better method is to exclude income drawn from without when we are thinking of the productivity of a country; a very great deal of this external sum is ear-marked in the Inland Revenue Report, and estimates have been made of the remainder. On the other hand, if we are considering the number of personal incomes of various amounts, we ought to include income from abroad, and exclude income paid to non-residents, even though taxed in the country. I am not aware of any estimates as to the amount which should thus be excluded.

The division between income from earning and owning can, if arbitrary but uniform rules are made for classifying profits, be made sufficiently definite to be useful. The Income Tax classification shows rent for land and buildings in Schedule A and interest of certain kinds in Schedule C. All the incomes in Schedules B (occupation of land) and E (salaries) are earned, and part of the remaining and most comprehensive Schedule D is definitely earned and so classified, while in another part earnings are not distinguished from profits and interests. If any reasonable division is made for this uncertain part, and its principle maintained for a series of years, the growth of unearned income can be ascertained with only a moderate margin of uncertainty, if the alterations of compilation are carefully studied. More material is now becoming available in the statistics which are or may be tabulated in connexion with the differentiation of the income tax in favour of earnings. The growth of earned income is more difficult to measure, because of the great uncertainty of the numbers and amounts of small salaries and earnings other than wages. It is probable that this intermediate income has grown very rapidly, and that if we ignored it we should underestimate the growth of earnings. In the future it will be possible to make a closer estimate of the relative growth of earned and unearned income, owing to the information that may be published as to the amounts taxed at the lower rate for the former. The available statistics suggest that the growths were at nearly the same rate in the last forty years of the nineteenth century, and that earnings may have lost ground in the last ten years. The statement often made that income-tax returns have shown a greater increase than the records of wage-changes since 1900 is true, but it needs a great deal of qualification; in particular estimates are not yet available for translating the statement into terms of growth of earned and unearned incomes, if only because much of the former is contained in the income-tax returns.

Real Income.

When we have satisfactory estimates of total income, we have still to study its relation to goods and services. An obvious, if crude, correction would be by the use of index numbers of the purchasing power of money; but, even if we can get over the trouble of deducing retail price changes from wholesale, index numbers still refer to commodities and not to services directly rendered. In particular, ordinary index numbers do not include rent, which affects all classes, and the poorer more closely than the richer, nor domestic or professional services, which affect the rich rather than the poor. These together account for perhaps a fifth or more of expenditure, and it is quite likely that they have become dearer in a period during which commodities have become cheaper. Perhaps we might find outside limits for this disturbance, but we should still be in difficulties because of the continual invention and increasing use of new commodities and new devices for spending money, which cannot be included in index numbers.

Again, as a country becomes more densely populated, the free gifts of nature are appropriated and become marketable, and their annual value is included in somebody's income. Allowance is made in estimates of agricultural labourers' wages for the free fuel they used to have; but no allowance is made for scarcity of blackberries, nuts, mushrooms, etc., when they are improved away by building or closer cultivation, nor for the greater or less enjoyment of fresh air and scenery. The marketable value of such things is now expressed in rent at health resorts. This question, if continued, would lead beyond my subject into an economic investigation as to the nature of rent; for the present purpose, it would be sufficient if we could add to national income at all dates a valuation of natural gifts freely enjoyed, just as we ought to add a valuation for personal services freely rendered if that varied. It need hardly be said that only fantastic measurements could be made.

Allied to the variation in time of the purchasing power of money is the variation in place (within a country) and variation between classes. We could, of course, take the position that there is sufficient mobility of persons, labour and capital to ensure that

£1 has the same value wherever, at whatever season, or by whom spent ; but in fact, purchasing power varies between town and country, north and south, England, Scotland and Ireland, and it is very doubtful whether people's choice of residence is influenced much by these variations. If we were attempting to make some measure of intrinsic value or satisfaction, we should, of course, have reference to the difference in marginal utility of £1 or 1*s*. in the hands of the rich and of the poor ; but we can evade this difficulty by combining with the estimate of the total a measure of the irregularity of its distribution, whether we accept the theory that equality of distribution would maximize satisfaction or not.

An even more serious obstacle to attaching any useful meaning to the aggregate of incomes for comparative purposes, or for measuring a concrete quantity which might perhaps be distributed differently, is obvious in economic analysis. The values included in incomes are values in exchange, which are dependent not only on the goods or services in question, but also on the whole complex of the income and purchases of the whole of a society. For example, after a redistribution of wealth, a box at the opera for the season would not exchange for the same number of pounds of meat as it does now. The numerical measurement of total national income is thus dependent on the distribution of income and would alter with it. It is not an aggregate of goods and services, nor of a number of pieces of money, but of exchange values. If the quotient of aggregate income when divided by population is £45, it does not follow that if the income itself could be divided equally among the population that the £45 would have the same purchasing power as before; it might prove to be greater, or it might prove to be less, and it is doubtful whether any statistical method could ascertain which would be the case.

Notwithstanding all these difficulties and cautions, we can attach a meaning to *changes* in aggregate income over a period not long enough to allow any great reconstruction of society or alteration in commodities purchased. With even greater caution, we might be able to compare the total incomes of two nations.

It should be observed that in all measurements of this kind changes in totals or averages may be so great as to make it certain that qualifications and corrections would not override the change; while small changes might easily be nullified by such corrections. The trouble from the point of view of scientific measurement is that we cannot always estimate any limit to the margin of error, so that an element of complete uncertainty or guesswork may remain.

Change of Distribution of Income.

As regards the measurement of the distribution of total income among individuals and its change, the most satisfactory way would be to find a mathematical formula for the distribution and study the change of its constants. If Pareto's law can be shown to apply sufficiently closely, the line representing the number of persons becomes flatter—the quantity α in $\log N = C - \alpha \log x$ and becomes less—as incomes become more equally distributed. This process can already be applied to the assessed values of houses (whose distribution in Great Britain is well represented by Pareto's formula), and if the relation of rents to incomes and its variation could be established, this problem of measurement would be solved. A growing uniformity of distribution of income would be shown by a change from a contrast between hovels and mansions to a general growth of mediocre serviceable small houses. Casual observation of the buildings of the last thirty years would suggest that the change has been in this direction.

The phrase "the rich are growing richer and the poor poorer" is nearly meaningless, unless there are definite groups which can be called rich and poor respectively. As it is we must, in a study of change of distribution, allow for a continuous grading. Apart from Pareto's equation several simple methods are conceivable, some of which have been used with fair accuracy: (1) By equal divisions of total income, thus: one-tenth of the nation's income is received by the 20,000 [1] (or whatever the number may be) richest persons, or by one four-hundredth of the families of the nation; another tenth by the 100,000 next richest, and so on till the last tenth accrues to the bulk of unskilled labourers and their families. This is one of Mr. Chiozza Money's methods, except that the fractions cut off successively by him are not equal. (2) By equal numerical divisions of income receivers: thus, if there are 10,000,000 family incomes in the United Kingdom, one million[1] are above £200, another million between £150 and £200, and so on, the last million being below £50. This is the method of deciles, quartiles and medians; it has been used in one form or another for wage statistics, and it is, in my opinion, the best method of giving a numerical description (for the reasons discussed above) for an instantaneous view, since the incomes at the dividing points can be determined with more accuracy than average and total incomes. It has the further advantage that it is readily applicable for describing changes. For studying the progress of the rich we should watch the highest percentile, of the well-to-do that of the highest decile, of the poor that of the lowest decile. (3) We can assign particular incomes—say, £40, £60, £100, £1,000, £10,000—and calculate the proportionate number of families in each grade from time to time; thus at one period a fifth of the incomes might be under £40, a quarter between £40 and £60, etc., and at a later date one-tenth under £40, a fifth between £40 and £60, etc. In this form the movement would be difficult to follow. (4) Instead of using the last method throughout, we could assign a minimum standard, such as that used by Mr. Rowntree, and either confine ourselves to adult men's incomes and reckon the proportion who fail to reach, say, £70 from time to time, or adapt the scale as before (p. 119) to families of different constitutions, and reckon the percentage of families below the standard at different dates. If we use the last method, we can modify the standard to allow for change of prices, and express the result in relative numbers of families, or of persons, or separately for men, women, and children. No doubt this method will be used in the future, taking as a basis the proportions indicated by the investigations, official and other, recently made, or still in the making. There is, perhaps, no better test of the progress of a nation than that which shows what proportion are in poverty; and for watching the progress the exact standard selected as critical is not of great importance, if it is kept rigidly unchanged from time to time.

---

[1] These numbers are purely hypothetical, except that they are chosen with some reference to conditions in the United Kingdom.

If we use the method of deciles, or the method of minimum standard, we can free ourselves from many of the difficulties that were found in the analysis of total income. The margin of uncertainty due to the ambiguity in the definition of a nation will have little effect on the deciles or the number below the standard except in so far that recent immigrants are in the poorest group; if this were investigated, here and in the United States, the results would be very interesting, as showing the effect of immigration on the standard of living of the country. The difficulties about the purchasing power of money, about the meaning of exchange values, and about free services, hardly affect the placing of families in the order of their income, and are completely allowed for in establishing a minimum standard. In the decile method, if we have established that in 1860 the position of the second decile from the bottom was at a family income of £50,[1] and in 1913 at £70,[1] we should proceed to study in all practicable detail the standard of living obtained by families with these incomes at these dates. The choice of these fixed positions serves as an easily intelligible and quite definite framework ; the descriptions transcend the measurements and enable us to form direct judgments of progress.

Progress of Classes.

Any of these methods can, of course, be applied to any definable district or class. There is danger, however, in dealing with a single class and measuring its progress only. Progress may take place by increased opportunities for passing from one class to another. Suppose that we define the manual working class satisfactorily in one generation and then watch the formation of the class falling within the same definition a generation later. Some of the daughters may have married into the middle class, some become milliners working for themselves and employing others, some cashiers, typists, or clerks, and some school-teachers. On the other hand, the daughters of the middle class do not readily work in a factory or go out to ordinary service. Of the sons of the working class some may emigrate, others win scholarships to secondary schools, and become clerks or teachers, and in a few cases go forward to a university. In a similar way the more enterprising and able of the unskilled workers will move up a grade, and their children, probably, move into a higher grade still.[1] There will also be a backwash of the relative failures of one class into the class below, but they are more likely to fall out of regular occupation; a bad clerk will not make a good artisan, nor a bad artisan a good labourer. Every one recognizes that this process has gone on in the cases of Ireland and of agricultural labour. The pick of the younger generation has gone to other countries, or to other occupations.

---

[1] These are hypothetical figures.

---

[1] See p. 89.

Though statistics relating to the middle class are very imperfect, there is no doubt that its numbers have grown relatively to the population as a whole, and that it has been recruited, by some of the steps named, since the prevalence of free education, from the children of manual workers. It is, of course, not possible to compare the aggregate or average incomes of any class with that of their descendants, even if any definite measurement were conceivable, when classes are so intermingled. We cannot be certain even that of two artisans' sons the one who becomes a clerk will have a larger income than the one who remains an artisan; but in considering the progress of an isolated class we must bear in mind that a selective influence has been at work, which has presumably modified its ability. With this understanding, we may treat the wage-earners in a defined list of industries as a statistical group and watch the change of their average income and of the deviation about that average. A particularly interesting measurement can be made of the change of wages in occupations where the processes have not changed in recent times, for example, those of shepherds and bricklayers. In connexion with such measurements we should always return to the conception of the nation as a whole, and find the position of the class and its proportion to the whole.

In considering the adequacy of income and the changing standard obtained by a person in a defined position (such as the median) in a nation, we ought to pay attention to his responsibilities, to the help he receives from society and to his compulsory payments. The introduction of compulsory education and the rise in the age of leaving school have made the whole cost of bringing up a child, till he earns his own living, greater; rates and taxes have been a varying proportion of income, with different incidence according to the amount of income; recent changes have tended to return a growing proportion of taxes in one form or other to the working class; the average number of children in a family has diminished; old people are relieved by Old Age Pensions; the facilities for self-support have probably increased for young women; while boys of the working class obtain wages sufficient for a fairly good standard of living as soon as they get to work. When these factors are measured, it will, I expect, be found that the family income required to provide a given standard is falling (after allowance for changes of prices have been made) for a great part of the population. On the other hand, public authority insists on a rising minimum standard in some respects, whose cost in part falls on the persons who are forced to maintain it, and this makes the measurement of a constant standard troublesome.

To complete this general measurement of progress, we have to pay attention to the change in the disutility of earning an income. We cannot, of course, measure the actual satisfaction or dissatisfaction of work, but some allied quantities are capable of measurement. No complete study has been made of the hours of work, but in very many industries and occupations it is known that they have decreased from time to time, even when allowance is made for additional time spent in travel, and a weekly half-holiday becomes continually more general. While it is alleged that the intensity of work has increased, it is certain that mechanical aids are continually relieving muscular effort. Other possible measurements are of accidents, and amount of illness, with their compensation or relief by insurance. All these will help to form a composite picture of the change of the general hardship of work, but will, of course, not give a numerical result.

Other Measurable Changes.

It is natural, when considering the progress of a nation as a whole, to pay attention to the change of the economic position of its members, for this dominates the occupation of their time and their opportunities for satisfying their desires; but there are many other measurable changes which statesmen must observe and of which statisticians must give an account, some of which I will enumerate.

The alteration of the density of the population as a whole is, of course, exactly proportional to that of the population itself, when the area is unchanged, and needs no further discussion; but the change in the areal distribution of the people is of great interest and importance, and should be followed according to the analysis of Chapter III. It is well known that during the last fifty years the growth of the numbers of inhabitants of different parts of the United Kingdom (as of all progressive countries) has varied greatly; the moorlands and mountainous districts remain as empty as ever, and even lose in numbers; the rural population of the cultivated areas only increases under specially favourable conditions; the growth of the nation is found in the coal-fields, the manufacturing areas and the great towns. The study of these changes is obviously of the first importance, but as its only difficulty is the delimitation of areas I do not propose to discuss it.[1]

Again, no analysis of the growth of a nation is complete, and no forecast is possible, without an account of the birth, marriage and death-rates. In the handling of each of these, specialized statistical technique is necessary, and the crude rates (where the annual numbers are divided by the number of thousands in the population) need modification to allow for the changes in age and sex constitution, already indicated, before any use can be made of them. In particular, infant and child mortality must be studied separately. Material for examining the birth-rates and the size of families in different social classes is now accumulating, and the alteration of the age constitution of the nation, which is proceeding with almost unexampled rapidity, can now be analysed and studied, and its probable effects forecasted. The changes in social and economic conditions resulting from these movements are certain to be far-reaching, and will modify the constitution of households as well as the relative sizes of classes.

---

[1] For a general analysis of the changes of rural population in England and Wales, see the *Statistical Journal*, May, 1914.

The changes in the relative numbers of persons in various industries and occupations is closely related both to areal distribution and to age grouping. Unfortunately, the difficulties of classification are so great that only very broad changes can be observed and only on the lines of division discussed on pp. 57 *seq.* There is, for example, no means of telling whether the proportion of skilled to all labour is increasing or diminishing, nor whether a greater or less demand is made for intelligence in modern industry. On the other hand, it is possible to draw conclusions as to the relative growth of the numbers of those engaged in professional, clerical and manual work, and (with less certainty) of the numbers rendering direct services as contrasted with those occupied in producing material goods. There are no data as regards the economic categories of landlord, capitalist, entrepreneur and earner. Our failure to make adequate delimitation of industrial or social classes involves equal failure in measuring their change.

Conclusion.

The question naturally arises as to whether official or private collections of statistics are on the right lines for making adequate social measurements possible. The former are fairly successful in providing data for administrative needs; and, in fact, if there were a central controlling statistical organization and a better supply of intelligence (which is much more important than money for this purpose) devoted to the accumulation of just that information which is wanted to make the various groups of existing statistics complete for the whole nation, and if the more important inquiries were repeated more frequently, we should have the general framework of measurement fairly complete.

On the other hand, private inquiries are often directed to the study of isolated phenomena or to a special and badly-defined class, and are not arranged to fit into any general measurement of society. They very often serve their immediate purpose of proving the existence of some evil, that may possibly be remedied, and showing that it is on a scale sufficiently large to call for attention ; but they are uncorrelated with each other or with official statistics. The functions of private investigation, in the general task of the numerical description of a society, are to fill in the gaps left by official statistics, as a temporary expedient, to make estimates with a greater margin of uncertainty than is countenanced by the official mind, and above all to make intensive observations in those places and of those persons or households which official statistics show to be typical or to occupy a definite place in some scale, and so to interpret the meaning of the barren tables in terms of human significance.

In conclusion, we ought to realize that

measurement is a means to an end; it is only a childish mind that delights in numbers for their own sake. On the one side, measurement should result in accurate and comprehensible description, that makes possible the visualization of complex phenomena; on the other, it is necessary to the practical reformer, that he may know the magnitude of the problem before him, and make his plans on an adequate scale.

APPENDIX

The following tables give detail of the 193 households referred to on p. 89, where one or more of the children at work and living with their parents was apparently settled in an occupation of a different social grade to that of his or her father.

The following abbreviations have been used in the tables :—

S. . .	Son.	typ. . .	typist.
D. . .	Daughter.	asst.. .	assistant.
L. . .	Labourer.	appr. .	apprentice.
F. . .	Factory.	f. cutter.	fustian cutter.
sh. . .	shoe.	P.O. .	Post Office.
cl. . .	clerk.	? . .	unknown.
off. . .	office.		

In order to show how one should read the entries, let us take the first entry on the table of children in Northampton in a higher social grade to that of their father. It reads as follows :—

Father (age 56) is an unskilled labourer with a weekly wage which is unknown. He has one son and two daughters, all of whom are skilled workers. The son, who is 25 years old, is a shoe " finisher " with a weekly wage of 28*s*. The two daughters are both " cleaners " in a shoe factory—the one of 22 years receiving 9*s*. a week, while the other (20 years) receives 13*s*. There are no other children at work,

NORTHAMPTON—CHILDREN IN HIGHER SOCIAL GRADE

Father.			Children in Higher Social Grade, stating relationship, age, occupation, and wage.	Other children, stating relationship, age, occupation, and wage.
Age.	Occupation.	Weekly Wage.		
			I. Unskilled to Skilled.	
56	. . . . . .	?	S. (25), sh. finisher, 28/–; D. (22), sh. cleaner, 9/–; D. (20), sh. cleaner, 13/–	
50	L.	22/–	S. (14), sh. room, 5/–	D. (19), laundress, 10/–
51	L.—golf links.	20/–	S. (26), sh.-legging room, 18/–; S. (22), pad manuf., 16/–; S. (20), paring manuf., 14/–; S. (15), sh. channeller, 10/–; D. (18), sh. skiver, 11/–	S. (28), porter, 16/–
54	L.	18/–	S. (20), foundryman, 12/–; S. (16), shopman, 8/–; D. (18), sh. 10/–	
58	L.—corporation	24/–	S. (21), sh. 28/–; S. (19), sh., 20/–; S. (17), sh., 15/–	
40	Wood L. . .	24/–	S. (19), sh. closer, 12/–	S. (16), mill lad, 12/–
44	Bricklayer's L.	20/–	S. (14), sh., 6/–; D. (18), sh., 9/–; D. (17), sh. 9/–	
63	Plasterer's L..	32/6	S. (25), wood-turner, 25/–; D. (27), sh., 17/–	
57	Blacksmith's L.	?	S. (18), sh. rough stuff, 15/–; S. (17), sh., 9/–; D. (22), sh.-legging room, 10/–; D. (14), sh., 4/–	
50	Brewery L. .	25/–	S. (21), tailor's cutter, 18/–; S. (22), engineer, 28/–	
64	Currier's L. .	22/–	S. (34), sh. clicker, 30/–; D. (21), sh. machinist, 16/–	

60	,, . .	?	S. (24), sh., 15/–; S. (18), sh., 18/–	S. (30), paper-hanger, ?
48	Carter . . .	19/–	S. (18), sh.-making room, 12/–	
48	,, . . .	23/–	S. (18), last fitter, ? ; D. (17), sh. machinist, 7/–	
58	Carman . .	22/–	S. (27), sh. clicker, 12/–; S. (21), sh. pressman, 23/–; S. (15), sh. clicker, 8/–; D. (19), sh. finisher, 11/–	
48	Vanman . .	21/–	D. (20), sh., 14/–; D. (18), sh. skiver, 11/–	S. (16), butcher-boy, 9/–
50	General dealer	?	S. (18), 23/–; S. (17), sh., 19/–	
50	Dustman . .	?	S. (26), sh. clicker, 28/–	S. (32), sh. L. 20/–; S. (24), sh. L., 20/–
50	Tube sweeper.	24/–	S. (25), sh. finisher, 30/–; D. (18), fitter, 12/–	
46	Sweeper . .	25/–	S. (17), sh. clicker, 13/–; D. (19), "skin" cleaner, 8/–; D. (16), sh., 4/–	S. (15), bottler, 8/–
60	Porter . . .	20/–	S. (27), last works, 40/–; D. (18), sh., 9/–	
50	,, . . .	14/–	D. (16), sh. machinist, 10/–	
41	,, . . .	19/–	D. (15), sh. machinist, 5/–	
53	Blacksmith's striker . .	21/–	S. (18), last works, 12/–	
45	Fruit picker .	7/–	S. (20), sh. ran tacker, 25/–	
55	Shoe-waxmaker	24/–	S. (21), tailor's cutter, 25/–; D. (19), blousemaker, 17/–	S. (24), cardboard boxmaker, 22/–
40	L.	20/–	S. (18), sh. fitter, 15/– ?	
61	L.	18/–	S. (30), printer, 25/–; S. (26), printer (invalid), 10/–; S. (18), printer, 10/–	
64	Grocer's warehouseman	15/–	D. (24), sh. fitter, 15/–	D. (40), boxmaker, 13/–; D. (17), boxmaker, 10/6

NORTHAMPTON—CHILDREN IN HIGHER SOCIAL GRADE—*continued*

Father.			Children in Higher Social Grade, stating relationship, age, occupation, and wage.	Other children, stating relationship, age, occupation, and wage.
Age.	Occupation.	Weekly Wage.		
			II FATHER AND SON SKILLED, BUT LATTER IN BETTER POSITION	
62	Sh. repairer .	10/–	S. (20), motor driver, 27/6 ?	
50	Sh. finisher .	30/–	S. (23), sh. 35/–	S. (16), sh. clicker, 8/–
			III. SKILLED TO CLERK.	
60	Enginedriver .	45/–	S. (22), cl., 25/–; S. (15), off. boy, 6/–	D. (24), sh., 12/–; S. (18), ? 15/–
75	Painter—Royal Navy	?	D. (25), typ., 20/–	
52	Police . . .	pension	D. (19), cl., 12/–	D. (24), machinist, 12/–
60	Signalman. .	24/–	S. (22), cl., 30/–; S. (18), cl., 20/–	D. (30), dressmaker, 10/–; D. (27), stationery asst., 12/–
50	Sh. welter. .	40/–	S. (19), cl., 21/–	D. (22), sh. fitter, 15/–; S. (17), grocer's asst., 8/–
43	Sh. finisher .	35/–	D. (15), cl., 8/–; S. (13), cl., 6/–	
47	Stonemason .	40/–	S. (21), cl., 20/–	D. (23), dressmaker, 10/–; D. (18), tailoress, 6/–
55	Fitter . . .	45/–	D. (19), cl., 8/–	D. (33), sh. fitter, 15/–; D. (30), blousemaker, 10/–; S. (23), metal-turner, 32/–; S. (21), metal-turner, 10/–

44	Coachbuilder .	45/–	S. (16), cl., 7/–	S. (19), process worker, 20/– ; S. (18), engineer's appr., 16/–
58	Sh. finisher .	30/–	D. (18), cl., ?	D. (25), forewoman—millinery, 20/– ; D. (22), tailoress, 18/– ; D. (20), milliner, ? ; D. (16) blousemaker, ?
52	Postman . .	32/–	S. (15), off. boy, 7/–	
45	Foundry—foreman	50/–	S. (21), cl., 25/–	
58	Engineman .	25/–	S. (19), cl., 14/–	S. (27), L., 21/– ; S. (22), painter, 30/– ; D. (25), sh., 16/–
50	Gardener . .	20/–	S. (18), cl., 16/–	D. (22), blousemaker, 14/– ; D. (20), sh., 11/– ; S. (16), sh. rough stuff, 11/–
51	Postman . .	29/–	S. (17), cl., 11/–	S. (18), bookbinder, 12/6 ; D (15), blousemaker, 6/–
35	Jointmaker .	23/–	S. (15), off. boy, 8/–	
51	Foreman—sh. finisher	?	S. (17), cl., 15/–	S. (26), sh. edge setter, 35/– ; D. (24), blouse packer, 13/– ; S. (21), compositor, 11/6 ; S. (19), sh., 22/– ; S. (15), sh.-making room, 11/–
47	Foreman—sh.-making room	38/–	D. (19), typ., 20/–	
47	Sh. finisher .	31/–	D. (21), cl., 13/–	D. (22), shop. asst., 12/– ; D. (23), shop asst., 13/–
41	Sh. rough stuff	30/–	D. (15), cl., 6/–	

NORTHAMPTON—CHILDREN IN LOWER SOCIAL GRADE

Father.			Children in Lower Social Grade, stating relationship, age, occupation, and wage.	Other children, stating relationship, age, occupation, and wage.
Age.	Occupation.	Weekly Wage.		
			I. Clerk to Skilled	
38	Cl.	40/–	S. (16), sh. last maker, 9/–	
45	Cl.—railway .	30/–	S. (16), steel worker, 12; S. (14), motor cleaner, 5/–	
			II. Skilled to Unskilled	
50	Sh. finisher .	45/–	S. (18), storekeeper, 14/–	S. (25), sh. mill scorer, 30/–; D. (23), blousemaker, 13/–
54	Head gardener	30/–	S. (17), lift-boy, 10/–	S. (21), tailor, 25/–
60	Gardener . .	18/–	S. (30), fish hawker, ?; S. (27), green-grocer hawker, ?	
45	Rough carpenter	30/–	S. (18), L., 18/–	S. (15), boilermaker, 8/–
56	Enginedriver .	45/–	S. (17), L., 10/–	
50	Lathemaker .	25/–	S. (18), grocer's porter, 12/–; D. (21) and D. (16), F. "hands," 10/– and 7/–	
57	Sh.	6/–	S. (21), milkman, 17/–	S. (25), grocer's asst., 20/–; D. (18), sh., 8/–
45	Currier . .	28/–	S. (17), porter, 12/–; S. (15), porter, 11/–	
41	Foreman—sh. closer	45/–	S. (16), storeroom, 6/–	
45	Goods tracer .	30/–	S. (18), cleaner, 16/–	
45	Sh. clicker .	30/–	S. (16), cinema attendant, 10/–	D. (14), pinaforemaker, 5/–
50	Painter . .	36/–	S. (14), van-boy, 3/–	
56	Sh. clicker .	31/–	D. (32), off. cleaner, 8/–	

WARRINGTON—CHILDREN IN HIGHER SOCIAL GRADE

Father.			Children in Higher Social Grade, stating relationship, age, occupation, and wage.	Other children, stating relationship, age, occupation, and wage.
Age.	Occupation.	Weekly Wage.		
			I. Unskilled to Clerk	
?	L.	30/–	S. (21), cl., 22/–	D. (24), newsagent, 6/–
53	L.	22/–	S. (18), cl., 16/–	S. (26), L., 25/–; S. (24), L., 21/–; S. (20), L., 20/–
43	L.	20/–	S. (18), cl., 10/–	S. (16), L., 8/–
43	L.	?	S. (17), cl., 14/–	
30	Milkman	24/–	S. (16), cl., auctioneer ?	
70	Night watchman	25/–	S. (20), cl., 20/–	
			II. Unskilled to Skilled.	
63	L.	18/–	S. (38), stoker, 30/–	
38	L.	24/–	S. (17), motor engineer, 17/–; D. (16), f. cutter's appr., 4/–	S. (13), grocer's boy, 4/–
46	L.	21/–	S. (22), wiredrawer, 45/–; D. (17), weaver, 14/–	
50	L.	25/–	S. (22), bricksetter, 38/–; D. (18), shop asst., 10/–; S. (15), driller, 6/–	
45	L.	20/–	S. (19), railway fireman, 21/–	S. (22), L., 20/–; D. (15), bottle-washer, 5/–
69	L.	20/7	S. (22), clogger, 20/–	
50	L.	27/–	S. (22), fitter, 34/–	
45	L.	21/–	S. (18), overlooker, 18/–	D. (20), f. cutter, 11/–; D. (16), f. cutter, 7/–

WARRINGTON—CHILDREN IN HIGHER SOCIAL GRADE—*continued*

Father.			Children in Higher Social Grade, stating relationship, age, occupation, and wage.	Other children, stating relationship, age, occupation, and wage.
Age.	Occupation.	Weekly Wage.		
68	Carter	25/–	S. (38), smith, 30/–	
50	,,	25/6	S. (25), moulder, 30/–; S. (23), moulder, 30/–; S. (20), fitter's appr., 13/–	
			III. FATHER AND SON SKILLED, BUT LATTER IN BETTER POSITION	
50	Puddler	55/–	S. (24), insurance agent, ?	S. (22), soap cooler, ?
45	Painter	27/–	S. (22), filesmith, 35/–; S. (19), printer's appr., 14/6	D. (18), soap packer, 14/–
			IV. UNSKILLED TO APPRENTICE	
40	L.	22/–	S. (16), baker's appr., 6/–	
42	L.	23/–	S. (15), tinsmith's appr., 7/–	
40	L.	25/–	S. (16), moulder's appr., 9/–	
36	L.	24/–	D. (14), spinner's appr., 2/6	S. (13), casual, 5/–
45	L.	21/–	D. (15), mackintosh maker's appr., 4/–	D. (22), f. cutter, 12/–; S. (18), steel worker, 12/–
45	L.	20/–	S. (18), cooper's appr., 12/–	S. (20), casual, 18/–
48	L.	21/–	S. (16), wiredrawer's appr., 8/–	S. (14), L., 5/–; D. (18), soap wrapper, 8/–
45	L.	27/3	S. (18), wiredrawer's appr., 12/–	S. (27), L., 21/–; S. (24), L., 21/–; D. (20), winder, 7/–; D. (13), bobbin filler, 5/–; D. (16), f. cutter, 5/6

40	L.	27/–	S. (18), moulder's appr., 10/–	S. (13), asst. L., 6/–
48	L.	30/–	S. (18), fitter's appr., 23/–; S. (16), driller's appr., 6/–; S. (21), tinsmith, 38/–	D. (14), casual, 4/–
42	L.	25/–	S. (16), moulder's appr., 10/–; D. (14), shop asst., 5/–	
			V. SKILLED TO CLERK	
58	Moulder . .	35/–	S. (25), cl., 25/–; S. (23), cl., 25/–	
50	Wireworker .	35/–	S. (17), cl., 13/–	S. (22), L., 22/6; S. (20), painter, 33/–
54	Furnaceman .	42/–	S. (14), cl., 6/–; D. (19), typ., 8/–	
50	Wiredrawer .	45/–	S. (22), cl., 24/–	D. (20), shop asst., 11/–; D. (15), tailoress's appr., 2/–
45	"Cutter down"	54/–	S. (15), cl., 8/–	
66	Army Pensioner	—	S. (26), cl., 30/–; D. (30), P.O. cl., 25/–; D. (23), P.O. supervisor, 20/–; D. (19), P.O. telephonist, 10/–; S. (17), bank cl., 5/–	
56	Wiredrawer .	?	S. (22), cl., ?; D. (24), teacher, ?	
50	Bricksetter .	35/–	S. (17) cl., 14/–; S. (14), reader in printing off., 11/–	
43	Stoker . .	25/–	S. (15), off. boy, 7/–	D. (17), toolworks, 9/–
			VI. CLERK TO MERCHANT	
70	Secretary . .	£200 per ann.	S. (35), silk merchant, ?	

WARRINGTON—CHILDREN IN LOWER SOCIAL GRADE

Father.			Children in Lower Social Grade, stating relationship, age, occupation, and wage.	Other children, stating relationship, age, occupation, and wage.
Age.	Occupation.	Weekly Wage.		
			I. Clerk to Unskilled	
61	Cl.	30/–	S. (32), L., 26/–	D. (27), typ., 18/–
			II. Clerk to Skilled	
49	Cl.	30/–	S. (21), blacksmith, 35/–	
30	Cl.	25/–	D (?), warper, 15/–	
48	Cashier	60/–	S. (15), wiredrawer, 4/–; S. (21), wiredrawer, 28/–; D. (18), shop asst., 9/–	
			III. Skilled to Unskilled	
63	Wiredrawer	35/–	S. (38), L., 23/–	S. (22), wiredrawer's appr., 15/–
54	Foreman stoker	34/–	S. (16), L., 7/–	
70	Property repairer	?	S. (30), L., 24/–	S. (25), blacksmith, 32/–; S. (24), basketmaker, 26/–
48	Puddler	40/–	S. (20), L., 23/–	
62	Toolmaker	19/–	S. (26), L., 20/–	D. (19), f. cutter, 10/6
?	Foreman	32/–	S. (19), carter, 18/–	S. (16), appr. roll turner, 6/–; D. (21), dressmaker, 14/–
?	Brakesman	28/–	S. (22), L., 22/–; S. (18), L., 18/–	S. (14), winder, 5/–

46	Goods foreman	30/–	S. (25), L., 24/–; S. (23), L., 25/–; S. (19), L., 18/–	D. (22), soap worker, 13/–
46	Boilermaker .	35/–	S. (23), L., 23/–; S. (21), L., 20; S. (20), L., 18/–; S. (14), L., 6/–	
?	Enginedriver .	30/–	S. (25), L., 25/–	
56	Puddler . .	39/–	S. (15), L., 7/–	S. (22), roller, 25/–
48	Shunter . .	32/–	S. (15), L., 7/–	D. (17), pinaforemaker, 5/–
54	Roller . . .	40/–	S. (18), L., 16/–	D. (24), draper, 5/–; D. (21), pinmaker, 14/–; D. (19), soap wrapper, 13/–
52	Cooper. . .	35/–	S. (28), L., 28/–	D. (21), soap wrapper, 13/–
45	Furnaceman .	24/–	S. (18), L., 12/–; S. (16), L., 10/–	
51	Brakesman .	42/–	S. (27), L., 27/–; S. (25), L., 26/–; S. (21), L., 22/–; S. (18), L., 16/–	
54	Shunter . .	27/–	S. (20), L., 23/–	S. (22), bottler, 22/–
62	Wiredrawer .	45/–	S. (23), L., 19/–; S. (30), L., 22/–	
59	File cutter .	18/–	S. (21), L., ?; S. (19), L., ?	D. (38), f. cutter, ?
60	Puddler . .	?	S. (21), L., 21/–; D. (15), bottlewasher, 5/–	D. (19), servant, 6/–; D. (17), servant, 5/–
67	Tinsmith .	?	S. (31), L., ?	

READING—CHILDREN IN HIGHER SOCIAL GRADE

Father.			Children in Higher Social Grade, stating relationship, age, occupation, and wage.	Other children, stating relationship, age, occupation, and wage.
Age.	Occupation.	Weekly Wage.		
			I. UNSKILLED TO CLERK	
60	L.	22/–	S. (24), cl., 20/–	
?	L.	21/–	S. (25), cl., ?	
43	Seedman's asst.	?	S. (16), cl., 10/–; D. (23), cl., 10/6	
45	Tinsmith	23/–	S. (18), cl., 12/–	S. (17), fitter's mate, 9/8
?	F.	22/–	S. (15), cl., 7/–	
?	F., sorter	?	S. (17), library asst., ?	
?	Bricklayer	?	S. (27), cl., ?; D. (22), shop asst., ?	
?	,,	?	S. (?), cl., ?; D. (18), nurse, ?	
			II. UNSKILLED TO SKILLED	
?	F. L.	21/–	S. (19), printer, 11/–; S. (16), plumber's asst., 5/–; D. (25), dressmaker, 14/–; D. (21), advertising, 11/–	
65	F. L.	21/–	S. (26), shop asst., ?	S. (25), milk carrier
40	F. L.	23/–	S. (17), fitter, 10/–	
60	F. store	23/–	D. (18), bookbinder, 8/–	
45	F. L.	20/–	S. (20), printer, 8/–	S. (15), errand boy, 5/–
56	F. L.	22/–	D. (20), draper's asst., 13/–; D. (15), dressmaker's appr., 2/–	
44	Cellarman	22/–	S. (19), printer, 17/–; S. (18), draper's appr., 10/–	
63	Bricklayer	?	S. (?), postman, 31/–	
68	L.—gas works	23/–	S. (35), painter, 32/6	

			III. UNSKILLED TO APPRENTICE	
50	F.	22/–	S. (?), printer's appr., 8/–; S. (?), coach-smith, 25/–	D. (15), service, 3/–
?	L.	24/–	S. (21), printer's appr., 13/6	D. (17), packer, 7/–; D. (15) packer, 6/–
53	Warehouseman	22/–	S. (17), printer's appr., 7/–; D. (23), bag maker, learner, 6/6	
?	F. L.	22/–	S. (16), moulder's appr., 8/–	D. (14), tailoring, 3/6
56	F. L.	22/–	S. (14), carriage builder's appr., 3/6	
?	F.	22/–	D. (14), dressmaker's appr., 1/–	
40	Under-guard	23/9	D. (16), dressmaker's appr., 6*d*.	D. (14), odd jobs, 2/–, and learning telegraphy
?	F.	25/–	S. (18), grocer's appr., 6/–	D. (20), "stitcher," printing, 8/–
45	Packer	23/–	S. (19), appr., 11/–; D. (16), dressmaker's appr., 2/–	
	IV. FATHER AND CHILDREN SKILLED, BUT LATTER IN BETTER POSITION			
55	Gardener	22/–	S. (22), shop asst., 27/–	D. (?), service, 8/–?
54	Saddler	24/–	D. (25), teacher, ?	D. (30), dressmaker, ?
			V. SKILLED TO CLERK	
?	Guard	27/–	S. (19), asst. to private secretary, 15/–	D. (18), bookbinder, 6/6; S. (16), shop asst., 7/–
?	Baker	25/–	S. (14), off. boy, 5/–	
40	Gardener	25/–	D. (15), cookery class, 4/–	
36	"	22/–	S. (14), cl., 5/–	
?	Carpenter	34/–	S. (14), cl., 5/–	
50	Solderer	24/–	D. (?), cl., about 10/–	
?	Salesman	30/–	S. (18), cl., 20/–	S. (16), shop asst., 7/–
?	F., Baker	25/–	S. (18), cl., ?	D. (22), tailoress, ?
?	Carpenter	40/–	S. (18), cl., 13/–; D. (17), shorthand typ., 6/–	
?	Joiner	?	S. (?), cl., ?	S. (?), porter, ?; D. (?), tailoress, ?

READING—CHILDREN IN LOWER SOCIAL GRADE

Father.			Children in Lower Social Grade, stating relationship, age, occupation, and wage.	Other children, stating relationship, age, occupation, and wage.
Age.	Occupation.	Weekly Wage.		
			I. Clerk to Skilled	
50	Cl.	32/–	S. (20), boot trade, 12/–; D. (24), dressmaking, 7/–	S. (16), cl., 7/–
50	Cl.	?	S. (24), tailor, ?; D. (26), dressmaking, ?	
			II. Skilled to Unskilled	
54	Blacksmith .	?	S. (19), F., 15/–	
?	Carpenter . .	26/–	S. (15), F., 6/6	
?	Gasfitter . .	?	S. (14), F., 6/6	
40	Chauffeur . .	25/–	S. (15), L., 5/–	
55	Gardener . .	20/–	S. (20), porter, 9/–	
?	" . . .	14/6	S. (21), F.—" Xmas hand "	
42	Bacon smoker	?	S. (16), porter, 9/–; D. (14), servant, 5/6	
48	Bricklayer. .	?	S. (18), L., 8/–	
48	Groom gardener	?	S. (17), tinman's L., 6/–; D. (21), servant, 6/–	
?	Engineman .	25/– to 30/–	S. (?), L., 8/–; D. (?), F., 5/6	
50	Tincutter . .	19/–	S. (?), F.—trolley runner, 21/–	S. (?), tin solderer, 14/–
50	Cabdriver . .	12/–	D. (17) F., 7/–	S. (15)
?	Wireman . .	24/–	D. (19), F. packer, 8/6	

41	Joiner's mate.	?	S. (17), F., 8/–; S. (15), F., 7/–	
?	Tilemaker. .	20/–	D. (21), F., ?; D. (14), F., 4/6	S. (17), bootmaker's asst., 7/–
?	Coachman. .	?	D. (20), F., ?; D. (19), F., ?; D. (18), F., ?	
?	On steam plough	25/–	D. (16), F., 8/6; D. (14), fruit sorter, 5/6	
?	Bricklayer .	?	D. (23), fruit sorter, 11/–; D. (20), packer, 10/–	
?	Painter . .	?	S. (?), porter, ?	S. (?), stonemason
48	Miller . .	?	S. (22), L., ?	
81	Shoemaker .	?	S. (17), L., 10/–; D. (19), packer, 9/–	
58	Salesman . .	?	S. (?), window cleaner, ?	D. (17), tailoring
53	Ironmonger's asst.	?	S. (25), porter	D. (21), learner—sewing machine

WELLCOME LIBRARY INSTITUTE

BY THE SAME AUTHOR.

**THIRD EDITION. 344 Pages, Demy 8vo, Cloth,
Numerous Diagrams, Price 10s. 6d. net,
Inland Postage, 5d.**

ELEMENTS of STATISTICS

A text-book dealing with the Methods and Principles of Statistics recognized by statistical experts or used by official statisticians. The methods by which accurate statistics can be collected are examined and illustrated, and the technique of statistical representation discussed.

Economic Journal.—" The London School of Economics has, since its foundation, had systematic courses of lectures on the Elements of Statistics, and the School, therefore, is entitled to share with Mr. Bowley the congratulations which are due to him for supplying a long-felt want. Without further ado it may be plainly stated that, whatever its shortcomings . . . this book is the *best* book on the Elements of Statistics written in English, French, German or Italian. . . . Mr. Bowley has very cleverly avoided the use of more than a very small amount of mathematics. In his object of making 'clear the groundwork of the subject, so that it will be the easier for students to follow modern writers on statistics' he has been successful. There will no longer be any excuse for persons of some reputation as statisticians to show themselves ignorant of modern methods. Such an introduction has been wanted for several years."

Crown 8vo, 2s. net. Inland Postage, 2d.

STATISTICAL STUDIES RELATING TO NATIONAL PROGRESS IN WEALTH AND TRADE 1882–1902.

A PLEA FOR FURTHER ENQUIRY.

The intention of this pamphlet is not controversial, and emphatically not political. An attempt is here made to put together in a simple and intelligible form some of the main statistics which illustrate the economic history of the United Kingdom during twenty years.

P. S. KING & SON, LTD., Orchard House, Westminster.

Books on Economics.

WEALTH.

A Brief Examination of the Causes of Economic Welfare.

By Edwin Cannan, M.A., LL.D., Professor of Political Economy in University of London. Crown 8vo, cloth, 3*s*. 6*d*. net. *Inland Postage*, 4*d*.

Times.—" A concise and instructive book."

Glasgow Herald.—" Mr. Cannan is probably the most trenchant, suggestive, and original of living economists."

PRODUCTION AND DISTRIBUTION.

A History of the Theories of Production and Distribution in English Political Economy, 1776–1848. By Edwin Cannan, M.A., LL.D., Professor of Political Economy in University of London. Second Edition. Demy 8vo, cloth, 10*s*. 6*d*. net. *Inland Postage*, 5*d*.

Oxford Magazine.—" A master has produced a masterpiece."

A PRIMER OF SOCIAL SCIENCE.

By the Right Rev. Monsignor Henry Parkinson, D.D. For the use of Schools, Colleges, Study Clubs, Debating Societies and all Social Workers and Students. Crown 8vo, cloth, 2*s*. net. *Inland postage*, 3*d*. 12 copies at 1*s*. 9*d*. each. 50 copies at 1*s*. 6*d*. each.

New Statesman.—" Taken all in all, this is perhaps the best small, cheap, introductory primer of economic and political science that is now on the market."

THE NATURE AND FIRST PRINCIPLE OF TAXATION.

By Robert Jones, B.Sc. (Econ.), with a Preface by Sidney Webb, LL.B. Demy 8vo. Cloth, 7*s*. 6*d*. net. *Inland Postage*, 4*d*.

Academy.—" An excellent Handbook for the Statesman, the Political Economist, and the Student."

CO-OPERATION AT HOME AND ABROAD.

A Description and Analysis. By C. R. Fay, M.A., D.Sc. Demy 8vo, cloth, 10*s*. 6*d*. net. *Inland Postage*, 4*d*.

Economist.—" This is a really useful book . . . and should hold the ground for a considerable time as a standard work on its subject."

P. S. KING & SON, LTD., Orchard House, Westminster.

BOOKS ON BOY LABOUR AND INDUSTRIAL TRAINING.

INDUSTRIAL TRAINING.

By N. B. DEARLE, M.A., Fellow of All Souls' College, Oxford. Demy 8vo, cloth, 10*s*. 6*d*. net. *Inland Postage, 5d.*

Times.—" Presents a valuable detailed survey of conditions, based on careful investigations. . . . Its importance is that certain pressing problems are here represented in their most acute form."

BOY LIFE AND LABOUR. The Manufacture of Inefficiency.

By ARNOLD FREEMAN, M.A. With a Preface by Dr. M. E. SADLER, C.B., Vice-Chancellor, Leeds University. Demy 8vo, cloth, 3*s*. 6*d*. net. *Inland Postage, 4d.*

Birmingham Post.—" Mr. Freeman's book must give thoughtful people concerned for the future of the country a good deal to think about. . . . A striking account of the influences which go to the shaping of the future of the boy."

CHILD LABOUR IN THE UNITED KINGDOM.

A Study of action taken by Local Authorities in administering the Law relating to the Employment of Children. By FREDERIC KEELING, on behalf of the British Section of the International Association for Labour Legislation. Royal 8vo, cloth, 7*s*. 6*d*. net. *Inland Postage, 4d.*

Times.—" An elaborate and interesting report."
Scottish Co-operator.—" A perfect storehouse of facts and figures."

JUVENILE LABOUR EXCHANGES AND AFTER CARE.

By ARTHUR GREENWOOD, B.Sc. Demy 8vo, 1*s*. net. *Inland postage, 2d.*

Times.—" A close examination by a writer of much knowledge and experience of the problem."

THE PROBLEM OF THE CONTINUATION SCHOOL, and its successful solution in Germany. A consecutive policy.

By R. H. BEST and C. K. OGDEN, B.A. Demy 8vo, 80 pp. 14 Full-page Plates. 1*s*. net. *Inland Postage, 2d.*

Lord Haldane writes.—" I hope that this very valuable and suggestive book on a new and urgent social problem will be exhaustively studied."

The Birmingham Daily Post says.—" This book should do a great deal to prepare that educated public opinion which alone can make legislation possible."

P. S. KING & SON, LTD., Orchard House, Westminster.

(Meetings Bd. public
Hope recover c̄ rest.)

Dr Cavers etc

M. 9|2

Whiting